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Original Articles.

LEUKEMIA AND SEVERE ANEMIA IN CHILDHOOD: A STUDY OF THIRTY-SEVEN CASES.

By John Lovett Morse, A.M., M.D., Boston.

Professor of Pediatrics, Emeritus, Harvard Medical School.

This study is based on thirty-seven cases of leukemia and severe anemia in childhood seen in hospital and private practice during the last twenty-five years. No cases in infancy have been included because, on account of the peculiarities of the infant's blood, they must be considered from a different point of view. Hemophilia and the purpuras have been excluded, as well as cases apparently secondary to hemorrhage from other causes. So also have cases apparently due to sepsis. The observations on these cases are, as a rule, not complete, because many of them were seen only once in consultation, the examinations of the blood were made by many different men, and, in many instances, before the development of the more recent methods. The examinations of the blood, in many instances, were not complete, some points being lacking in one instance and some in another. Unfortunately, autopsies were seldom made. Nevertheless, in spite of the incompleteness of the observations, an analysis of this series, which is a considerable one for childhood, does show a number of points of interest.

MYELOGENOUS LEUKEMIA.

This diagnosis was made but once, in a boy of four years, and then on the findings of an incomplete autopsy, showing the rarity of this condition in childhood. The first symptoms, irregular fever and intermittent swelling of the joints, began in November. He vomited blood about the middle of May. His color from that time on was described as of a greenish pallor. His abdomen began to enlarge early in July. Dyspnea and cough developed soon after. There was a profuse nasal discharge and swelling of the legs a week before his sudden death at the end of August.

He was of a marked yellowish pallor. There was a general enlargement of the peripheral lymph nodes to the size of marbles and beans, and there were signs of marked enlargement of the tracheo-bronchial lymph nodes with pressure. The lower border of the liver reached to the right anterior superior spine and passed through the navel. The spleen reached to the anterior superior spine and filled in the loin. There was edema of the genitals and legs.

He died unexpectedly before the blood was examined. Dr. Wolbach reported that the liver

and spleen showed the characteristic changes of myelogenic leukemia.

LYMPHATIC LEUKEMIA.

There were twelve cases of undoubted lymphatic leukemia in which the mononuclear cells numbered at least fifty thousand, in most instances being in the hundreds of thousands. There were four boys and eight girls. Their ages at their last birthdays were: Two, two, three, three, five, six, six, six, seven, nine, ten, and thirteen years—an average of six years. The duration of the disease varied between three and twelve weeks, with an average of eight weeks, except in one case, in which the history of the onset was very indefinite and which apparently lasted nine months. That is, lymphatic leukemia almost always runs a very acute course in childhood.

In one instance in which the blood was examined and found normal before the development of scarlet fever in the hospital, leukemia developed during convalescence and ran its course in three weeks. In another instance the onset apparently followed a fall. In the other cases there was no apparent etiology.

The first symptoms noted were enlarged glands in the neck, vomiting and hemorrhage, each in two instances; weakness, fever, sore throat, anorexia, pallor and abdominal pain, each in one. Hemorrhages occurred in all but one case; early in four, late in seven. Eight had nosebleeds and eight purpura, while two had bleeding from the gums. Two vomited blood, one had blood in the stools, another in the urine, and another a hemorrhage into the conjunctiva. The symptoms complained of were weakness and fever, each in seven; vomiting and abdominal pain, each in four; sore throat, three times; pain in the neck and chest, sweating, dyspnea, headache, and ulceration in the mouth, each once.

The glands in the neck were enlarged in ten cases; markedly in four, moderately in one, and slightly in five. Those in the axillae and groins were enlarged, each in nine cases. There were evidences of enlargement of the tracheo-bronchial lymph nodes in five cases. The epitrochlear glands were enlarged in three cases, and the popliteal, and occipital, each in one. The liver was enlarged in eight cases, the enlargement in six being considerable. The spleen was greatly enlarged in five and moderately in five. The nutrition was noted as being good in six and poor in three. The urine was normal in five cases, showed albumin alone in two, albumin and red cells in one, and albumin and casts in another.

The accompanying table (Table I) shows an enormous increase in the number of white cells, even up to 1,000,000. This increase was in most instances almost entirely in the mononuclear cells. These were usually classified as lymphocytes, but in one instance they were called small mononuclear, in another medium-sized mononuclear, and in another large mononuclear. In several the cells were of various sizes. This classification is not of great importance, because the examinations were made by many different men. No myelocytes were noted in any instance. There was usually, but not always, a considerable diminution in the hemoglobin and number of red corpuscles. Morphological changes in the red cells were absent or very slight in all but three cases. In these cases, a very few normoblasts were seen in two, many normoblasts and megaloblasts in one. The blood platelets were noted in but four cases. In two they were said to be diminished, and in two, much diminished. The bleeding and coagulation times were noted in but one instance, the first being five minutes and the latter three minutes.

SEVERE ANEMIA WITH MODERATE OR LOW WHITE COUNTS, BUT WITH A HIGH PERCENTAGE OF MONONUCLEAR CELLS.

An attempt was made to divide these cases into two classes, those in which the white count was within or above the normal limits, and those in which it was below. It was impossible to do this, because the count might be subnormal, normal, or a little above normal on different days. In a few, however, the count was consistently low. There were eighteen cases in this group, twelve boys and six girls. All of them died. The ages at their last birthdays were: Two, two, three, three, three, three, three, three, three, three, four, four, five, five, six, seven, eight, and twelve years, giving an average of four and one-half years. The duration of the disease varied between two weeks and six months, with an average of ten and one-half weeks. If the two cases which lived six months are excluded, the average duration of the others was eight and one-half weeks. That is, this type of blood disease in childhood runs a very acute course. In one instance the onset of the illness was immediately after an attack of measles, in another it followed an operation for the removal of tonsils and adenoids, and in another a fall on the head. In one it was thought to have developed after an attack of malaria, but no plasmodia could be found in the blood. In another there was a possible connection with an abscessed tooth, but there was no improvement after the tooth was removed. In the others there was no apparent etiology.

The first symptoms noted were pallor in six and malaise in three cases; enlarged glands and weakness, each in two; loss of appetite, fever, pain in the abdomen, enlargement of the abdomen, and diarrhea, each in one. Hemor-

rhages occurred in one-half of the cases; early in three, late in six. Two had nosebleeds and eight purpura. Two vomited blood and one bled from the mouth. One had blood in the stools. The symptoms complained of were weakness in fifteen and fever in thirteen cases. There was loss of appetite in eight, vomiting in three, and diarrhea in two instances. One had a sore throat and three sore mouths. Four complained of pain in the extremities, one of pain in the neck, and another of headache. Two were short of breath, while cough, sweating, chills, and edema were each noted once.

The glands in the neck were enlarged in fifteen cases; markedly in three, moderately in five, and slightly in seven. Those in the groins were enlarged in ten, and those in the axillae in seven instances. Evidences of enlargement of the tracheo-bronchial lymph nodes were found three times. The parotid glands were apparently enlarged twice, but the enlargement was shown at autopsy in one of them to be about the gland, not in it. The liver was enlarged in sixteen cases, the increase being considerable in more than half. The spleen was enlarged in twelve, or 75 per cent.; being much enlarged in five, moderately enlarged in four, and slightly in three. The nutrition was good in ten, fair in six, and poor in only two. The urine was normal in all but two, in which it showed a trace of albumin. Wassermann tests were done in two and tuberculin tests in six, all of which were negative.

A comparison of the history, physical signs, and duration of the disease in this group of cases and in the group of children with lymphatic leukemia shows no essential difference in any particular. The differences are only in degree and no greater than between different cases in the same group.

The analysis of the blood picture in this group, as shown in the accompanying table (Table II), brings out a number of interesting points. The percentage of hemoglobin was below fifty in fifteen, or 83 per cent. In one case, however, in which there were over 6,000,000 red cells, it was 96 per cent., and in another 75 per cent. The red cells were usually much diminished, being below 2,000,000 in ten, or 55½ per cent., and over 3,000,000 in only three, or 17 per cent. The number of white cells was below 30,000 in all but two cases. In one of these it varied between 29,000 and 70,000; in the other it was 40,800. In the latter case, at another examination, it was only 18,600. It was below 10,000 at some time in eight cases, in one instance being as low as 2,600. The proportion of mononuclear, nongranular, white cells varied between 64 per cent. and 100 per cent., being 90 per cent. or over in twelve, or 66 per cent. In most instances these cells were entirely or preponderantly of the lymphocytic type. In only three was there a preponderance of large mononuclear cells. The blood platelets were noted in but eight cases. None was seen in two, there were very few in four, they were much diminished in one, and numbered 28,000 in another. Morphological changes in the red cells were, as a rule, slight or moderate and seldom extreme. Nucleated cells were seen in but four cases. In three of these there were only a few normoblasts, in the other there were many megaloblasts, as well as normoblasts. This case also showed the most marked changes in size, shape, and staining of the red cells. The bleeding and coagulation times were noted in but one instance. They were six and a half minutes and seven minutes, respectively.

Comparison of the blood picture in this group with that in the group of definite lymphatic leukemias shows that the percentage of the hemoglobin and the number of red cells were lower in this group. While the number of white cells was, of course, much lower, the percentage of mononuclear cells was about the same. The relations between the large and small mononuclear cells were likewise not materially different. The platelets were greatly reduced in both. The morphological changes in the red cells were, on the average, considerably greater in this group than in the positive leukemias; the proportion of cases showing nucleated red cells was no greater.

Are the cases in this group lymphatic leukemia in an aleukemic stage or are they some form of severe anemia? Pathological examinations would have settled this question. Unfortunately, an autopsy was performed in but one instance, the child whose hemoglobin was 96 per cent. and the number of whose red corpuscles was 6,364,000, according to the hospital records. The white cells in this instance ranged between 6,700 and 14,700, and the percentage of mononuclear cells between 64 and 77. The absolute number of mononuclear cells was never increased more than 60 per cent. and was at one time below normal. The polynuclear neutrophiles were diminished from 30 per cent. to 40 per cent. of the normal. The diagnosis of acute lymphatic leukemia was made on the macroscopic changes at the autopsy, but, unfortunately, the records do not contain any report of the microscopic findings. The findings in this instance are so different from those in any of the others that it is difficult to know how to interpret them. It is possible that there may have been some error in them.

The normal number of leucocytes in childhood is approximately 10,000 per cubic millimeter. Disregarding the small percentage of eosinophiles and mast cells, before five years about 60 per cent. of them are mononuclear and 40 per cent. polynuclear neutrophiles. At and after five years, about 40 per cent. are mononuclear and 60 per cent. polynuclear neu-

Table I. *Lymphatic Leukemia.*

Age.	Percentage Hemoglobin.	Red Corpuscles.	White Corpuscles.	Percentage Lymphocytes.	Percentage Small Mononuclears.	Percentage Medium Mononuclears.	Percentage Large Mononuclears.	Absolute Number Polynuclear Neutrophiles.	MORPHOLOGY OF RED CORPUSCLES				Platelets.	Bleeding Time.	Coagulation Time.
									Size.	Shape.	Staining.	Nucleated.			
2	?	?	57,000				98	1,140	Mod. Variation	N	N	None	?		
2	25	1,280,000	54,000	85			8	3,780	Consid. Variation	Consid. Variation	Achromia	None	?		
	20	1,370,000	153,600	84			12	6,144	Consid. Variation	Consid. Variation	Achromia	Few normoblasts	?		
3	24	2,024,000	87,000	87			6	6,090	Slight Variation	N	?	None	?		
	80	3,670,000	390,000	98				7,800	N	N	N	None	Diminished		
9	45	3,100,000	325,000	39			58	9,750	N	N	N	None	?		
5	35	1,960,000	217,000	100				0	Slight Variation	Mod. Variation	N	None	Much Diminished	5′	3′
6	70	3,520,000	128,000		99.2			1,024	N	N	N	None	?		
	40	2,468,000	577,000	97				17,310	Marked Variation	Marked Variation	Achromia +	Many normoblasts	?		
3	30	1,864,000	469,000	97				14,040	Marked Variation	Marked Variation	Achromia +	and megaloblasts	?		
6	55	3,624,000	632,000	99				6,320	Marked Variation	Slight Variation	Achromia Slight	Very few normoblasts	Diminished		
7	52	3,100,000	87,000	20			70	8,700	N	N	N	None	Much Diminished		
	40	1,880,000	96,000	19			72	8,640	N	N	N	None	?		
		2,700,000	380,000	29			41	114,000	Slight Variation	Slight Variation	Achromia	None	?		
9	60	2,480,000	456,000	22			61	77,520	?	?	Achromia	None	?		
10	75	4,000,000	484,000			97		13,520	N	N	N	None	?		
	55	2,100,000	536,000	97				16,080	?	?	?	?	?		
13	?	4,500,000	1,000,000	100				0	?	?	?	?	?		

Table II. *Severe Anemia.*

Age.	Percentage Hemoglobin.	Red Corpuscles.	White Corpuscles.	Percentage Lymphocytes.	Percentage Large Mononuclears	Absolute Number Mononuclears	Absolute Number Polynuclear Neutrophiles.	Percentage Myelocytes.	MORPHOLOGY OF RED CORPUSCLES				Platelets.	Bleeding Time.	Coagulation Time.
									Size.	Shape.	Staining.	Nucleated.			
2	96	6,864,000	14,700	50	23	10,731	3,969		Some Enlargement	N	?	None	?		
			6,700	23	41	4,288	2,412		?	?	?	?	?		
2	20	1,584,000	5,100	68	15	4,233	867		Mod. Variation	Mod. Variation	Mod. Achromia	None	?		
3	75	3,500,000	7,000	60	20	5,600	1,400		?	?	Slight Polychromatoph.	None	?		
3	20	864,000	2,600	94	2	2,496	104		Consid. Variation	Consid. Variation	Mod. Achromia	None	?		
	20	736,000	16,000	95	2	15,520	480		Consid. Variation	Consid. Variation	Mod. Achromia	None	?		
3	25	2,560,000	15,400	99		15,246	154		N	Slight Variation	Mod. Achromia	1 to 100 whites	None		
3	30	2,328,000	20,200	98.4		19,876	324		N	N	Slight Achromia	None	Very few		
3	20	1,124,000	9,300	81.2	0.4	7,588	1,712		Mod. Variation	Slight Variation	N	None	28,000		
3	30	1,180,000	32,000	100		32,000	0		Marked Variation	Mod. Variation	Marked Achromia	None	Very few		
3	10	1,168,000	10,000	91	2	9,300	700		Marked Variation	N	Mod. Achromia	None	None		
4	40	1,200,000	8,400	95		7,980	420		Slight Variation	Slight Variation	Marked Achromia	None	Very few		
4	10	784,000	19,200	82	10	17,664	1,536		Slight Variation	Slight Variation	Slight Achromia	None	?		
5	10	3,200,000	20,000	24	75	19,800	200		Mod. Variation	N	Marked Achromia	None	?		
5	35	1,480,000	10,400	56	34	9,360	728	3	N	N	Slight Achromia	None	?		
5		2,960,000	40,800	56	27	33,864	5,304	4	Consid. Variation	Consid. Variation	Marked Achromia	?	Very few		
	30	2,300,000	18,600	78	1	14,094	3,162	4	Slight Variation	Slight Variation	N	2 normoblasts to 100 whites	Much Diminished	6½′	7′
6	15	756,000	25,900	99.4		25,744	249	0.3	N	Mod. Variation	Slight Achromia	1 normoblast to 325 whites	?		
7			16,400	8	86	15,416	984		N	N	Slight Achromia	None	?		
	50	2,880,000	9,200	20	76	8,832	368		Slight Variation	Slight Variation	?	None	?		
8	20	1,263,000	8,000	83	3	6,880	1,000	1.5	Slight Variation	Mod. Variation	Mod. Achromia	22 to 400 whites Mostly normoblasts 18 to 200 whites	Much Diminished		
	30	1,528,000	13,000	71	9	10,400	1,950	5	Consid. Variation	Slight Variation	Marked Polychromatoph.	Mostly megaloblasts	Much Diminished		
12	30	2,000,000	35,000		95	33,250	1,750		Slight Variation	?	?	None	?		

ARBITRARY STANDARDS—White Corpuscles—10,000.
Before 5 years —60% mononuclears and 40% polynuclear neutrophiles.
5 years and after—40% mononuclears and 60% polynuclear neutrophiles.

trophiles. Accepting these figures as an arbitrary standard and calculating the absolute number of mononuclear cells and polynuclear neutrophiles, it appears that, in spite of the high percentage of mononuclear cells in all these cases, the absolute number of mononuclear cells was below the normal, either all or part of the time, in four cases, and but little above the normal all or part of the time in five others. That is, there was a noteworthy increase above the absolute normal number of mononuclear cells in only one-half the cases. These figures suggest very strongly that in at least one-half of these cases there was no disease of the structures in which the mononuclear cells—at any rate the small—originate, but that the difficulty was in those structures in which the polynuclear neutrophiles are formed. That is, the high percentage of mononuclear cells was not due to an increase in their number, but to a decrease in the number of polynuclear cells. The calculation of the absolute number of polynuclear neutrophiles shows that in every instance but one the absolute number of polynuclear neutrophiles was very much reduced, and in this instance it was also somewhat below the normal. It may be said that the diminution in the absolute number of polynuclear neutrophiles was due to an overgrowth of lymphoid tissue in the bone-marrow. Against this argument are the diminished or nearly normal number of mononuclear cells in half of the cases and the comparatively moderate increase in the others, as it would seem likely that there would be an enormous increase in the number of mononuclear cells, if the process was severe enough to interfere so greatly with the polynuclear neutrophilic function of the bone-marrow. The marked diminution in the number of blood platelets is further evidence in favor of a diminution in the function of the bone-marrow. The morphological changes in the red cells were, as a rule, slight, or, at most, moderate. Nucleated red cells were seen in but four cases and were very few, except in one instance. There are two possible explanations for the absence of more marked changes in the red corpuscles: one, that, as the seat of trouble is not located in the bone-marrow, there is no reason why there should be many changes in them; the other, that the productive powers of the bone-barrow are so impaired that it is unable to manufacture the normal number of red cells, but that the productive power which remains is of nearly normal quality. Taking into consideration the other characteristics of the blood picture, it seems, in spite of the resemblance of the history and physical signs of this group of cases to those of lymphatic leukemia, as if the latter was the more probable explanation.

A profound depression of the productive powers of the bone-marrow apparently explains the blood picture in this group better than lymphatic leukemia. It does not, however, satisfactorily account for the enlargement of the liver, spleen and lymph nodes and the increase in so many cases of the mononuclear cells, unless it is assumed that they may originate in the bone-marrow. Even then an increased production would hardly be expected. Another possible explanation is that there has been a compensatory hypertrophy of the lymphatic system. It is also very possible that the cases in this group are not all of the same kind. Some of them really may be cases of lymphatic leukemia in an aleukemic stage, or there may be various gradations between lymphatic leukemia and severe anemia in children. There is nothing to show that the anemia in these cases is due to excessive blood destruction. There is certainly no evidence of the characteristic attempts at regeneration of the blood when this is the cause. That is, they are not like the ordinary pernicious anemia of the adult. The course is too rapid for the blood changes to be due to exhaustion of the bone-marrow after a previous stimulation. The anemia is evidently due, then, to failure of the bone-marrow to carry on its functions. That is, these cases, or, at any rate, most of them, belong in the group usually spoken of as aplastic anemia, rather than among the leukemias. The absence of hemorrhages in half of the group counts much against their being examples of purpura hemorrhagica. In the absence of any studies of bleeding and coagulation time and of fragility, it is possible that some of the cases with hemorrhages may belong in this class.

The following case also suggests that the cases in this group belong to the anemias rather than to the lymphatic leukemias. This girl of five years had gradually increasing weakness and pallor for six weeks. She had been feverish for a week. She had lost her appetite and occasionally complained of pains in the abdomen. Purpuric spots had appeared on various parts of the body and extremities for several weeks, ecchymoses in the eyelids three days before, and bleeding from the gums that day. She was fairly developed and nourished and markedly pale. There were a few small glands in the neck and groins. The liver was palpable 10½ and the spleen 4 cm. below the costal border. The urine was normal.

The blood showed: Hemoglobin, 35 per cent.; red corpuscles, 1,744,000; white corpuscles, 9,000; lymphocytes, 66 per cent.—5,940; polynuclear neutrophiles, 6 per cent.—540; eosinophiles, 1 per cent.—90; myelocytes, 27 per cent.—2,430. The changes in the red cells were only moderate, except that there were six normoblasts and two megaloblasts to 100 white cells. More purpuric spots appeared and she began to vomit blood, dying six days later. Her blood, the day before she died, showed: Hemo-

globin, 25 per cent.; red corpuscles, 1,136,000; white corpuscles, 5,000; lymphocytes, 69 per cent.—3,450; polynuclear neutrophiles, 11 per cent.—550; eosinophiles, 1 per cent.—50; myelocytes, 19 per cent.—950. The morphological changes in the red cells were somewhat more marked, but there were only four normoblasts and no megaloblasts to 100 white cells.

In this case also the number of white cells was normal or diminished, and, although the percentage of mononuclear cells was high, the absolute number was but little or not at all increased. The number of polynuclear cells was not only relatively but absolutely very much diminished. There were, however, a considerable number of myelocytes. The morphological changes in the red cells were somewhat more marked, and there were a considerable number of nucleated red cells. That is, it would seem as if the fundamental process was the same as in the group, but that in this instance there had been a partial attempt at regeneration of the blood and that the bone-marrow had been able to throw partly finished cells into the circulation.

Another instance which is corroborative of the belief that these cases are anemias rather than leukemias is the following:

A boy of eight years, previously perfectly well, had become bedridden in eight weeks because of weakness. He had also lost much color, but had had no fever, hemorrhages or digestive symptoms. He was well developed and nourished, but of a marked yellowish pallor. There was no enlargement of the peripheral lymph nodes, but the liver was palpable 3 cm. below the costal border, and the spleen reached below the level of the navel. His urine contained a slight trace of albumin and a few granular casts. His stool was formed, light brown in color, and contained neither parasites nor eggs. His blood showed: Hemoglobin, 25 per cent.; red corpuscles, 1,500,000; white corpuscles, 5,000; lymphocytes, 14 per cent.—700; polynuclear neutrophiles, 86 per cent.—4,300. The red cells showed slight achromia and polychromatophilia. There was much variation in their size and shape. There were many large red cells, but no general macrocytosis. No nucleated cells were seen and there was no stippling. The blood platelets seemed somewhat reduced in number.

His condition grew steadily worse and he died four weeks later. The hemoglobin and red cells continued to diminish. The number of white cells remained low, their relative proportions being the same. At no time were there any nucleated red cells.

At first glance the high percentage of polynuclear neutrophiles makes this case appear different from the others. Calculation of the absolute number of these cells shows, however, that they are not increased, but that the lymphocytes are diminished. This case also seems to be, therefore, one of severe anemia without regenerative changes in the bone-marrow, differing from the others only in that there is also an impairment of the lymphocytic function of the organism.

I have had two very marked and fatal cases of anemia in children, differing from those previously described in having a longer course and brown pigmentation of the skin. The pigmentation was greater in one than in the other, but in both was much more marked in the areas where pigmentation is normal. They presented the characteristic picture of the skin seen in marked cases of Addison's disease. Wassermann and tuberculin tests were repeatedly negative in both, however; both had an elevated temperature at times, and neither suffered from profound muscular weakness. One had a normal systolic blood pressure, but it was low in the other. The autopsy in the first case showed that there was no disease of the adrenals. It is evident, therefore, that the pigmentation in these cases was in some way connected with the anemia and was not due to disease of the adrenals. Except that both of these children had very small numbers of both red and white cells, their pictures were quite different in other ways.

One of them died when 8¼ years old, having had symptoms of anemia for more than three years. An examination of his blood made two years before I saw him, a short time before his death, was not markedly different from the one made at that time, which was as follows: Hemoglobin, 15 per cent.; red corpuscles, 860,000; white corpuscles, 8,000; small mononuclears, 61 per cent., and large mononuclears, 11 per cent.—5,760; polynuclear neutrophiles, 25 per cent.—2,000; eosinophiles, 0.5 per cent; basophiles, 2.5 per cent. The red corpuslees showed little achromia, but marked variation in size and shape, with a tendency to a predominance of large forms. There was an occasional stippled red cell. Ten normoblasts and one megaloblast were seen to each 200 white cells. The blood platelets numbered 12,900.

He was fairly developed and poorly nourished. There were a few small lymph nodes in the neck. The liver was palpable 5 cm. below the costal border, but the spleen could not be felt. The anatomic and microscopic findings at autopsy admitted no other diagnosis than pernicious anemia.* In spite of certain differences in course and physical signs, the general resemblance to the other cases is evident, showing that this case belongs in the same general category. There is the same apparently marked, but really slight, increase in the number of mononuclear cells, and the same marked absolute diminution in the number of the polynuclear neutrophiles and blood plate-

*American Journal Diseases of Children, 1917. Vol. xiv, p. 391.

lets. The red corpuscles show, however, a somewhat greater attempt at regeneration on the part of the bone-marrow.

The other case was a little girl whose skin began to turn brownish-yellow when she was eight years old. The first marked symptom was a severe nosebleed six months later. She was seen two weeks afterward. She was well developed and nourished. The skin was everywhere a dirty yellow, deepening to brown in the axillae and groins and about the nipples. The mucous membranes were pale. There was no enlargement of the peripheral lymph nodes and the liver and spleen were not palpable. Her blood showed: Hemoglobin, 25 per cent.; red corpuscles, 1,344,000; white corpuscles, 3,000; small mononuclears, 67 per cent., and large mononuclears, 11 per cent.—2,340; polynuclear neutrophiles, 22 per cent.—660. The red cells were fairly uniform in size, shape and staining qualities. There were no nucleated cells.

She was under observation most of the time until her death, fifteen months later. She had repeated severe nosebleeds and was transfused several times, with temporary improvement. Much of the time she was up and about, seemed to feel well and was always happy. The browning of her skin increased and finally became very marked. The peripheral lymph nodes were never enlarged and the spleen was never palpable. The liver was somewhat enlarged at the last. The blood picture never changed materially. The blood platelets were always very much diminished. The bleeding time was once as long as thirty-two minutes. The coagulation times varied between four and six minutes. Partial hemolysis occurred at 0.50 per cent; complete, at 0.35 per cent. The blood, two days before her death, showed: Hemoglobin, 10 per cent.; red corpuscles, 392,000; white corpuscles, 5,600; small mononuclears, 71 per cent., and large mononuclears, 2 per cent.—4,088; polynuclear neutrophiles, 27 per cent.—1,512. There was slight achromia, but no polychromatophilia; moderate anisocytosis, but no poikilocytosis. Two nucleated red cells were seen to 500 whites. The platelets were very scanty. The coagulation time was six minutes.

In this instance the normal coagulation time suggests that the condition is nearer to purpura hemorrhagica than aplastic anemia. The absence of marked morphological changes in the red cells and the relative and absolute diminution in the number of red cells are, however, far more characteristic of anemia than of purpura. The border line between these conditions is very indefinite, however, and it is likely that an aplastic condition of the bone-marrow may be associated with or secondary to purpura hemorrhagica. At any rate, this case is so much like the others that we are hardly justified in classifying it differently and calling it purpura hemorrhagica.

In another instance, in which the duration of the illness was about twenty months, most of which time the boy was under observation, the picture was very similar to that shown in the group. His illness began when he was seven and one-half years old, with a headache and nosebleed, after which he gradually grew paler and purpuric spots appeared from time to time. The hemorrhagic tendency ceased after about six months. Shortly before this his blood showed: Hemoglobin, 20 per cent.; red corpuscles, 736,000; white corpuscles, 5,700; small mononuclears, 90 per cent.—5,130; polynuclear neutrophiles, 10 per cent.—570. There was almost no achromia and no polychromatophilia or stippling. There was very little anisocytosis or poikilocytosis. One nucleated red cell was seen. The platelets were very scanty.

There was no enlargement of the liver, spleen or glands at that time, and the urine, stools and tuberculin test were negative.

His general condition improved somewhat in the next few months. A general slight enlargement of the peripheral lymph nodes developed, but there was never any enlargement of the spleen or liver. Several months later he developed an otitis media and mastoiditis, which was operated upon and cured. Neither this illness nor its cure had any especial effect on the anemia. His blood, about six months before his death, showed: Hemoglobin, 25 per cent; red corpuscles, 1,003,600; white corpuscles, 2,500; mononuclears, 50 per cent.—1,250; transitionals, 1 per cent.; polynuclear neutrophiles, 48 per cent.—1,200; eosinophiles, 0.5 per cent.; mast cells, 0.5 per cent. The red cells showed slight achromia and polychromatophilia. There was a slight tendency to macrocytosis, but almost no poikilocytosis. There was no stippling and no nucleated cells were seen. The platelets were very much diminished.

This case apparently belongs in the same group of severe anemias due to impairment of the functions of the bone-marrow. It evidently does not belong among the purpuras. It is also evident that it was not due to infection from the ear, because its course was the same before, during and after the otitis media and mastoiditis.

The following case, in which the anemia was undoubtedly due to infection or intoxication from otitis media, shows how similar the blood picture in such a condition may be to that which we have been considering. This boy, after having a discharging ear for nearly six months, became pale and weak quite rapidly during the next month. When seen then at two years and eight months he was very pale, there was a general slight enlargement of the peripheral lymph nodes, the liver was palpable 5 cm. and the spleen 3 cm. below the costal

border. There was a foul discharge from the right ear. The blood showed: Hemoglobin, 25 per cent.; red corpuscles, 1,272,000; white corpuscles, 6,600; small mononuclears, 38 per cent.; and large mononuclears, 15 per cent.—3,498; polynuclear neutrophiles, 42 per cent.—2,772; eosinophiles, 3 per cent.; mast cells, 2 per cent. There was marked achromia, some polychromatophilia, and considerable variation in the size and shape of the red cells. Six normoblasts and three megaloblasts were seen for each 100 white cells. The platelets were not noted.

The low white count and the absolute diminution in the number of polynuclear cells are noteworthy. It is also noteworthy that the bone-marrow is attempting to regenerate the red cells.

Under treatment and after the removal of the tonsils, he improved in every way, and the glands, liver and spleen diminished in size, although the ear continued to discharge. The blood improved markedly in every way, but there was never any leukocytosis. He returned four months later, covered with large and small purpuric spots and bleeding from the gums. The cervical lymph nodes were much enlarged; the liver was palpable 5 cm. and the spleen 6½ cm. below the costal border. The examination of the blood was incomplete, but it contained 43 per cent. of hemoglobin, 2,992,000 red corpuscles and 29,000 white cells, 85 per cent. of which were mononuclears. He was transfused, but continued to bleed for a month, when he stopped. The glands in the neck were very large, his ear discharged freely, the wound in the neck made for the transfusion was open and septic, and he had difficulty in breathing. He was then taken from the hospital against advice. His blood at that time showed: Hemoglobin, 32 per cent.; red corpuscles, 1,688,000; white corpuscles, 2,800; small mononuclears, 82.5 per cent., and large mononuclears, 3 per cent.—2,349; transitionals, 2.5 per cent.; polynuclear neutrophiles, 10.5 per cent.—294; eosinophiles, 0.5 per cent; basophiles, 1 per cent. There was marked achromia, but no nucleated red cells. No platelets were seen.

After his return home a retropharyngeal abscess apparently ruptured and drained into the throat. He had many abscesses in various parts of the body, which were opened and drained. He gradually recovered. He is now nine years old, and, according to his physician, perfectly well, although his blood has not been examined. Interesting points in this case are that it shows that infection can so greatly depress the productive powers of the bone-marrow and thus bring on a blood picture materially different from that usually seen in infections. It suggests the possibility that an infection or intoxication may be at the root of the severe anemias which we have been considering, even though there is no evidence of any source of infection or intoxication.

SUMMARY.

Myelogenous leukemia is a most unusual condition in childhood. Lymphatic leukemia is uncommon, but occurs much more frequently than the myelogenous type. More common than either is a very severe and rapidly fatal type of anemia, in which there is a most profound depression of all the functions of the bone-marrow. In certain instances there may be associated with it an increase in the productiveness of the lymphatic organs. The line between this condition and lymphatic leukemia is at times somewhat indistinct. It strongly resembles, if it is not identical with, the aplastic anemia of adults. Its relation to the purpuras can only be determined by more careful study by modern methods. Its etiology is not evident, but analogy suggests that it may be the result of some intoxication or infection. The ordinary type of pernicious anemia of adults is extremely rare in childhood.

REPORT OF PROGRESS IN ORTHOPÆDIC SURGERY.

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This report is based upon the "Report of Progress in Orthopædic Surgery," as published in the *Archives of Surgery*, January, 1922. As an introduction, I would like to quote from the Presidential Address of Major-General Sir Robert Jones in the British Orthopædic Association; he defines the scope of orthopædic surgery as follows:

1. Fractures — recent, mal-united, and ununited.
2. Congenital and acquired deformities of the extremities.
3. Paralysis of the extremities.
4. Diseases and disabilities of the joints, including the spine.

He suggests a scheme for hospital organization. In a general hospital of three hundred beds, he believes forty is a fair proportion to allocate to orthopædic surgery, with beds in the country for children,—the general surgeon having a right to treat any case or group of cases of extremity surgery in which he is especially interested. His aim, as is the aim of all fair-minded orthopædic surgeons, is not to take away from the general surgeon any group of cases in which he is interested, and to the treatment of which he is willing to bring devotion and skill, but to bring about a more speedy restoration of function by stimulating the interest and developing the skill of a certain group of surgeons, to whom this type of case appeals as

an interesting surgical problem and as a humanitarian necessity.

The following outline will form the skeleton of the report:

1. Congenital conditions.
2. Tuberculosis.
3. Diseases of nutrition or faulty metabolism.
4. Inflammatory conditions.
   a. Arthritis.
   b. Osteomyelitis, etc.
5. Statics or body mechanics.
   a. Posture.
   b. Foot strain and foot deformities.
6. Paralysis.
   a. Anterior poliomyelitis.
   b. Spastic paralysis.
7. Syphilis.
8. Scoliosis.
9. Neoplasms.
10. Tendon, bone and joint surgery.
11. Peripheral nerve injuries.
12. Dislocations.
13. Fractures.

I. CONGENITAL CONDITIONS.

Congenital Dislocations of the Hip. — This condition and its treatment again furnishes material for active controversy, as at different times in the past. There are three methods of treatment—the closed method by brutal force, with or without traction machine; the closed method by gentle manipulation; and reduction by the open method. Reduction by brutal force is growing out of fashion—partly because of the deformities which were a direct result of this method, and partly because brutal force is not required. A great many functionally good hips have, unquestionably, resulted from this method. Reduction by gentle manipulation is growing in favor; its chief promoter, Professor Denucé of Bordeaux, France, has been able to demonstrate to the satisfaction of the most critical and doubting mind, better functional and better anatomical results than any clinic in this country can demonstrate. As for open reduction, some men, such as Galloway, go as far as to advocate this method, to the exclusion of the other two. There are, undoubtedly, old cases, and some young, difficult cases where this is the only way, but open reduction is by no means an easy operation—especially not when the operator finds the acetabulum a cartilaginous prominence, instead of the promised concavity shown in the x-ray. The open method should then not be used unless the gentle, closed method has failed.

Congenital Equinovarus. — Again the knife *versus* force. In this case, however, the situation is somewhat different, as a combination of the two frequently is the most efficient. In young cases, application of corrective plasters will, as a rule, be successful. In older cases, Dr. Ober's operation[1] is a helpful, logical procedure.

II. TUBERCULOSIS.

No motion, no tuberculosis. This is the keynote in the treatment of all joint tuberculosis. In children, where the element of time is of relatively slight importance, and where we have growing epiphyses to deal with, immobilization by plaster or splints, accompanied by heliotherapy. In adults, surgical intervention is the keynote of treatment, as soon as an absolute diagnosis has been made. Fusion and bone-grafting operations of the spine, arthrodesis of the sacro-iliac joint, arthrodesis of the hip, excision of the knee — all with the same aim, elimination of motion. In the majority of cases, these procedures are successful. A word of warning: For years it has been taught that tuberculosis usually is monarticular; it usually is, but secondary foci are not rare. We find secondary foci in the spine, where the primary focus has been cured by bone graft, or by fusion operations. We find secondary joints, we find secondary foci in kidneys, and last, but not least, we have tubercular meningitis. In tuberculosis of the ankle, in the most severe adult cases, amputation seems the rational procedure. It saves time and gives the patient a member he can trust, rather than a painful foot, which is apt to be the source of secondary foci. The shoulder and elbow may be treated by arthrodesis, but, not being weight-bearing joints, they respond better to immobilization than the joints in the lower extremity. The wrist is questionable; excision of the wrist, with fixation in dorsal flexion, is a very useful procedure; amputation—radical as this procedure may seem—should be seriously considered in extensive cases with sinuses. Where the time element does not play an important part, immobilization treatment by splints or plaster is the most common method of treatment.

III. DISEASES OF NUTRITION OR FAULTY METABOLISM.

Rickets.—Experimental work seems to prove that phosphorus, cod liver oil and sunlight restore the bones to normal nutrition. As regards corrective treatment of deformities resulting from rickets, some men favor osteotomy, some osteoclasis. Osteotomy is usually favored when the maximum curve occurs near a joint. Actinotherapy, by means of the quartz lamp, has been found useful in the treatment of rickets.

Osteomalacia.—Interest in this condition has been stimulated since its frequent occurrence in famine-stricken areas in Europe. This type of osteomalacia responds readily to proper food, endocrine products, and actinotherapy. The

good old-fashioned type of osteomalacia that we find in the clinics of this country is not so easily cured.

IV. INFLAMMATORY CONDITIONS.

Arthritis.—Arthritis still remains the same confusing problem, but there seems to be a steady advance toward its solution by the great amount of research work now being done in all parts of the country. Dr. Pemberton's work on carbohydrate metabolism and his general biochemical attack, are important; it is an attack from a new point of view, and has become a distinct adjunct to the routine, established method of treatment, *i.e.*, the search for, and sane elimination of the foci of infection.

Osteomyelitis.—Radical surgical intervention, so long in vogue with far from brilliant results, is gradually losing ground to conservative treatment. The principle of the conservative treatment consists in localized drainage and obliteration of cavities. The latter is brought about by the turning in of fat or muscle flaps into the osteomyelitic cavity.

V. STATICS OR BODY MECHANICS.

Posture.—Effect of posture on general health is generally accepted. Correction of posture, correction of ptosis, restoration of chest to proper functional position, have an undisputed effect on general health. Local conditions affecting digestive system, respiratory system, and functional conditions of the nervous system will be indirectly affected.

Foot Strain and Foot Deformities. — Treatment of strain consists in rest followed by exercise. Rest is brought about by supports, plates, or Thomas heels; surgical interference is rarely indicated.

Hallux Valgus.—Surgical treatment should aim at correction without destruction of weight-bearing point of first metatarsal; Kellar's operation[2], therefore, is growing in favor.

VI. PARALYSIS.

Anterior Poliomyelitis. — Etiology *in statu quo.* Treatment in early stages remains the same as it has for some years past,—anatomic rest during the acute stage, *i.e.*, for from one to two months, followed by muscle reëducation. In regard to surgical interference in later stages, emphasis must be laid on careful study of all muscle groups, analyzing their effect on the particular deformity to be corrected. Astragalectomy, with posterior displacement of the foot, has been used in too much of a wholesale manner; when used in cases of calcaneous, the results should be uniformly successful.

Spastic Paralysis. — Stoffel's operation, or intra-perineural neurotomy, is growing in favor. Favorable results have been obtained from operations on the popliteal and obturator nerves, for the correction of equinus and adductor spasm, respectively.

VII. SYPHILIS.

Syphilis.—Attention must again be called to the frequent negative Wassermann reactions in bone syphilis, some authors finding it positive in only 50 per cent. of the cases. Anti-syphilitic treatment plus apparatus equals distinct improvement in syphilitic joint conditions.

VIII. SCOLIOSIS.

The etiology remains varied, and in a great many cases undetermined. One factor which undoubtedly will grow in importance is the factor of trauma. We have Legg's disease of the hip; in spite of the recent report of Phemister[3], trauma to the epiphysis seems the most logical etiology. The spine, like the hip, has epiphyses, and not a child escapes without more or less severe falls. Why, then, should we not have Legg's disease of the spine as a common etiological factor in scoliosis?

Fusion operation on the dorsal spine is advocated by the New York School. Good results, as far as stability goes, have been obtained. The dorsal spine is selected because the articular facets in this region are in the frontal plane, and, therefore, allow considerable lateral flexibility.

IX. NEOPLASMS.

The literature on neoplasms consists chiefly in case reports, without any distinct advance in the treatment. X-ray treatment, if conscientiously carried out, has greatly improved statistics, and promises to do even better in the near future. As end-results are more carefully studied, the failures of the most radical amputations should make us pause. In this connection, there seems to be some hope in the curative effect of the high voltage currents, but this treatment is still undeveloped.

X. TENDON, BONE AND JOINT SURGERY.

Tenotomy.—One should always think twice before interfering with muscle action. A muscle will contract in proportion to the length and tone of its individual fibers; if the tone or tension of a muscle is interfered with, the effective leverage of the muscle is decreased. Tenotomies or tendon lengthenings should, therefore, be seriously considered before undertaken, —a muscle with its tendon cut has only a fraction of its former power. The present attitude is distinctly in favor of tendon lengthenings by the step-like method of Bayer or the V-shaped method of Vulpius.

Derangements of the Knee-joints:

1. *Crucials.*—There is a distinct tendency to overcome disability secondary to ruptured cru-

cials by repair or reënforcement of the internal and external lateral ligaments; the results are favorable.

2. *Semilunars.* — Diagnosis not difficult if symptoms are carefully analyzed. Removal only after repeated displacements, or after initial displacement when attempt at reduction has proved unsuccessful.

3. *Transplantation of Bone.* — The fight is still on between autogenous and heterogenous bone grafts. There is, as yet, not enough evidence in favor of either to make a definite decision. In regard to medullary graft *versus* bone inlay, the evidence is distinctly in favor of the latter.

4. *Ankylosing Operations on the Spine.*— Polya suggests a modification of Albee's method, by which the graft is inserted at the base of the spinous processes; Forbes has a modification of Hibbs' operation. The principle of all ankylosing operations is, of course, the same; no one method will be uniformly successful. Any surgeon should be conversant with the different procedures, so as to be able to choose the one best adapted to the case in hand; sometimes a combination of two methods is advisable.

5. *Ankylosis of Sacro-iliac Joint.*—This operation is indicated in adult cases of tuberculosis of the sacro-iliac joint, and in selected cases of sacro-iliac relaxation. It has been performed with considerable success by different methods. Hertz uses a bone-peg; Smith-Petersen a dowel.

6. *Arthroplasty.* — The work of Putti is known to all; as the technique becomes perfected, arthroplasty will undoubtedly be used in many cases where arthrodesis is now the common procedure. It will never replace arthrodesis, however, especially not in the tuberculous joints. We should never undertake arthroplasty, except in well-selected cases.

XI. PERIPHERAL NERVE INJURIES.

The fantastic methods of nerve repair have all been abandoned—end-to-end suture without tension remaining as the only logical and physiological method. By end-to-end suture, good results are obtained in motor or sensory nerves; in cases of mixed nerves, results are less favorable; neurolysis is successful in the majority of cases. Where nerve suture fails, tendon transplantations will, in many cases, greatly improve function; the most striking example of this is found in the transplantations after the manner of Jones and Starr, in cases in which irreparable damage and failure of repair of the radial nerve have occurred.

XII. DISLOCATIONS.

Recurrent Dislocations of the Shoulder. — Sever depends on tenotomy of the pectoralis major and shortening of the sub-scapularis tendon to decrease leverage and strengthen weakened inferior portions of the capsule. Thomas feels that reefing of the capsule is sufficient. Both procedures are successful in the hands of the authors, in the majority of cases.

XIII. FRACTURES.

Dr. Osgood, in his article on "The Standardization of Methods of Treatment in Orthopædic Surgery and in Industrial Surgery of the Extremities and Spinal Column,"[4] concisely summarizes the present attitude in the treatment of fractures: "In the early treatment of fractures of the long bones, the essential factor in relieving pain, securing alignment, maintaining fixation, and in general minimizing shock, is traction,—traction immediately applied and maintained without remission until union has begun and muscle spasm has ended. Of course, we must have radiographs in two planes, or better, stereoscopic. We must have fixative splints, alone or in conjunction with Balkan frames, weights and pulleys, but we must have traction before all these,—traction of the earliest possible moment. If there is danger that joints will become ankylosed, let us be sure that the position of ankylosis is that of greatest function—a shoulder in 70-80° of abduction; the upper arm half-way between the mesial and horizontal planes in slight outward rotation; the elbow, depending on the occupation, one side or the other of the right-angle position, but never in extension; the wrist in half-normal, dorsal flexion; the hip in slight flexion and slight abduction and slight outward rotation; the knee in 10° of flexion in a man who must walk well and stand at his work, but in 20-30° of flexion in most women, who sit at their tasks; the foot at a right angle to the lower leg, and never abducted."

For complete abstracts of articles dealing with orthopædic surgery, I refer the reader to the "Sixteenth Report of Progress in Orthopædic Surgery."[5]

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DR. MAURICE BLOOM of England, who has recently visited the United States, contends that within one hundred years every person in this country will be wearing glasses. He suggests that we are traveling at a pace that kills, and calls attention to the amount of work which is done under artificial illumination. We work too much, our systems are overtaxed, and we are abusing our eyes by reason of improper arrangements for proper lighting facilities.

SPEECH DEVELOPMENT IN CRIPPLED CHILDREN. REPORT OF ONE HUNDRED AND TWO CASES.*

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ONE of the psychological problems of the crippled child is that of the voice and speech. A recent survey of one thousand and forty-four (1044) cases admitted to the Orthopædic Hospital-School, of Los Angeles, during the years 1918-1919-1920-1921, shows that eighty-two (82), or over seven and one-half (7½) per cent., had, with their orthopædic trouble, some form of speech defect. In reality the survey does not include two hundred (200) cases admitted prior to 1918 and in which there was no mention made of any existing speech defect. Applying the percentage of the later admissions to these two hundred (200) cases will give fifteen (15) more cases probably existing but not mentioned, owing to the fact that the diagnosis and treatment of speech defects was not being made at that time. A grand total then of ninety-seven (97) cases out of one thousand two hundred forty-four (1244) orthopædic admissions gives a percentage of about eight (8) per cent. Contrast this figure with the percentage of speech defects in school children of the United States and Europe, namely, one (1) to two (2) per cent., and the enormous relative disproportion is apparent at a glance. In other words, there are from five (5) to ten (10) times as many speech defect cases amongst the handicapped as there are amongst a similar number of other children of school age.[9]

It is evident that some special reason should exist for this great disproportion, and that reason is undoubtedly found in the nature of the pathological processes that are the cause of the various motor paralyses, incoördinations and ataxias. Whether crippled children have a more unbalanced nervous system, due to their hypersensitiveness, is not taken into consideration in this article, but is undoubtedly a factor in the large percentage of speech defects found amongst them.

Birth injuries, resulting in motor paralyses of one or all of the limbs, often include damage to the speech centers in the cerebral cortex and to the central nuclei, caudate, lenticular and red and optic thalami with injury to the speech area.

Polio-encephalitis (Strümpell), with resulting motor paralyses as a sequel to the cerebral lesions, occasionally attacks and may damage the speech centers; in fact some cases in this list are of encephalitis.

In general terms it may be stated that any pathological process, whether it be inflammation (intracranial or intraspinal) at or after birth, or trauma resulting in the actual loss of substance, the formation of cysts, cicatricial bands or pacchymeningitis associated with the integrity of motor or sensory areas of the brain, including those of speech, will of necessity result in either lack of sensory perception of the spoken or written word or failure to develop speech, either written or spoken, or both.

The faculty of speech is one of the intricate muscular coördinations, and when the power to coöperate the various parts of the speech function—namely, ideation, respiration, phonation and articulation—is lost from any cause whatever, language production will either be entirely absent or imperfect.

When we remember that speech is a form of motorized thought,—motion picture ideas in fact,—and that gesture is the primitive speech racially, we realize how impossible it is for a case of disordered muscular coördination[2] or motor paralyses of one or all of the limbs to develop that stage of seemingly purposeless muscular activity with cooing, that comes between birth and the time of development of the spoken word. The crippled child cannot lay the foundation for spoken and written speech and gestures (O'Shea,[6] "Linguistic Development and Education").

The normal child has learned to respond by appropriate acts to its doll, bottle, etc., and to hundreds of other objects. These habits are essential to the formation of language habits. (Watson, John[10]: "Behavior," pp. 328-329.) The crippled, the spastic, the incoördinated child cannot form habits of response to objects, and its language development may be hampered, delayed, undeveloped, by reason of its physical handicap.

To the paralyzed child is denied even the hope of learning to express the thought by the so-called manual form of speech training used with deaf children.

THE IMPORTANCE OF THE KINAESTHETIC MEMORY.

In health every muscle movement is registered in the muscle memory center or movement memory centers in the cerebral cortex. Muscle movement memories spring from previously existing memories stored in the brain[3] and no voluntary or conscious muscle movement is possible without first calling on the already stored memory. If normal children with normal speech have placed in their brains, through endless repetition, perfect muscle movement memories, these can be evoked and through a perfect coördination of the necessary systems, normal speech is produced.

The paralyzed, incoördinated, atrophic or spastic child, who has uncontrolled or unintelligible gestures or no purposive movements or no speech or imperfect speech, has, of necessity, stored in his brain only imperfect muscle memories. Voluntary movements must be sec-

* Read before the Sixty-fifth (65th) semi-annual meeting of the Southern California Medical Society, November 5th, 1921.

ondary not primary functions of our organism.[5] It follows then that in the crippled child, only imperfectly executed muscular movements will result when the effort to gesture or speak is made.

A concrete example of the working of imperfect muscular memories is seen in the imperfect speech of the cleft palate case even after a perfect operation for closure of the palatal defects has been done. The physical mechanism may be in a normal condition but the memories of muscle movement, already stored in the brain by the child, are the imperfect ones resulting from the use of the imperfect physical mechanism. In the reëducation of the cleft palate case each sound has to be remade correctly by him a sufficient number of times until the perfect record is indelibly impressed on neurons in the brain center, whence it may on occasion be called forth by the demands of speech.

Realizing that many orthopædic cases take months and even years of treatment, it becomes imperative to provide a suitable form of speech training for the development of speech where it does not exist and for the correction of defects when they are present.

Many of the speech defect cases herein mentioned had some endocrine disturbance. Endocrine treatment and supervision has been of value in many of the cases. Recognizing the importance of the internal secretions on the regulation of function, the appropriate endocrine medication has been prescribed by Dr. Clifford A. Wright in every case where indicated, before the speech training was begun.

Speech in a normal child develops after a cooing, seemingly purposeless, bilateral movement period.[6] In crippled children there is no such "pre-speech" period and when the child's desire for expression has grown to a point where it demands motion or action, there are no muscular movement memories, no trained, coördinated movements to be utilized; first as gestures, then as oral or written speech.

The development of speech and the correction of speech defects, it was realized, was but a part of the training in muscular coördination and all but five (5) of the cases were under the care of the Orthopædic Hospital-School staff.

The lack of control of the muscular system and its hyperaction, so characteristic of the spastic case, is manifested in an inability to make and maintain the proper moulds or shapes for vowel and consonant sounds, hence, the rough, rasping voices of such children. The spastic lacks inhibition, smoothness, rhythm, balance and tone inflection. Few are able to whistle or sing a tune and their breathing is generally very shallow.

DROOLING.

A very noticeable feature of many crippled children is the drooling or overflow of saliva from the mouth over the lower lip. This results often from the palsy of the cheek, tongue, lip and pharynx muscles, or sometimes the drooling results from a muscular incoördination or a spastic condition of the salivary glands. The strengthening and coördination of muscular effort that comes from speech drill has a markedly beneficial effect on the drooling; in many cases causing it to disappear entirely.

THE SPEECH DEVELOPMENT.

It must be seen at the outset that no speech development independent of the training of the other muscular systems can be undertaken with any hope of success. The spastic's entire controlling, inhibiting power is undeveloped and must be brought to a degree of practical use before real progress can be made. For this reason the orthopædic surgeon puts at rest the hyperacting limbs, and nervous energy ceases to be lost. Various surgical operations, followed by suitable casts, braces and physio-therapeutic treatment, will stop the most of the loss of nervous energy (motor activity is a biological necessity for development) and it is only after some degree of coördination of muscular effort is attained that the spastic can begin to use his hands to grasp things within the reach of his tactile sensation. Repetition of movement leads to habit formation[3, 4] and to the placing of a definite muscle movement memory in the brain. The entire range of muscular movement memories must be removed and by reeducation and coöperated movement, the kinaesthetic sense developed. The speech machine must be reëducated at the same time in order that the entire muscular system may be put in proper functioning order; that is a biological necessity.

I agree with the following on the judgment of mental status: "The judgment of mental status of the cerebral spastic child is singularly difficult. The patients are almost always restricted to a very narrow life, and speech difficulties are usually marked. No doubt many crippled children are judged too severely and regarded improperly as idiots or imbeciles. The combination of set expression and speech defect with extreme awkwardness creates an impression of defective mentality that is hard to overcome." (Crothers, in *Medical Clinics of North America*.[8])

The mental training of crippled children is attracting more and more attention, and surely the faculty of speech, one of the most essential, personal and intimate avenues of expression, deserves to be kept alive, to be strengthened and put in working order in these handicapped children. This work is a very recent development and has received very little attention from specialists.[1] Scripture devotes one (1) page to it and calls it "spastic speech" but suggests no treatment. Bluemel[7] mentions it.

ORTHOPAEDIC HOSPITAL-SCHOOL PATIENTS WITH SPEECH DEFECTS.

October 1, 1921

Total number of cases examined 1020
Number of patients with speech defects 82
Number of patients with no diagnosis of speech defect 15

Total 97

Name	Age Entered	Present Age	Age Examined	Psych. Age	I-Q	Diagnosis	Part Affected
A. F.	2-11	4-10	3- 3	2-		Spastic Diplegia	Legs and Right Arm
A. S.	2- 6	3- 8	2-	-11		Spastic Paraplegia	Legs
A. C.	12-	12- 7	12-	6- 8	55	Spastic Paraplegia	Legs
A. T.	6- 9	7- 5	6-10	3- 2	46	Spastic Hemiplegia	Right Side
B. C.	10- 9	12- 7	10- 9	8- 2	Ret.	Infantile Paralysis	Left Leg
A. H.	7- 6	9- 8	7- 6	8-	Br.N.	Infantile Paralysis	Left Arm
B. J.	2-10	3- 3				Tubercular Humerus	Right
B. M.	2- 1	3- 6	3- 2	3- 2	100	Spastic Hemiplegia	Right Side
B. A.	9- 2	10- 3	9- 4	4- 4	46	Ataxia	Legs
B. K.	4- 3	5- 4			Sub.	Micro-cephalic	Entire Body
B. E.	8- 1	8-11	8- 3	2- 8	H.Sub. (Mongoloid)	Ant. Dislocation H ps Relaxed Posture Endocrine Subnormal	Posture
C. V.	3- 3	3- 7				Spastic Diplegia	Legs and Right Arm
C. M.	7- 5	8-10	8- 6	4- 2	50	Muscular Incoordination	All Extremities
C. J.	4- 4	7- 5	5- 3	3- 3		Jacksonian Epilepsy	Body
C. G.	3-	7- 3				Birth Palsy Spastic	Right Side
C. V.	12-	13- 4				Spastic Diplegia	All Extremities
C. W.	4-	5- 5				Muscular Incoordination	All Extremities
D. F.	7- 4	10- 5				Cerebral Palsy Incoordination	All Extremities
D. P.	19- 7	20-	19-	11-11 H. Sub.		Spastic Monoplegia	Left Arm
D. F.	4- 9	5- 2				Spastic Paraplegia	Legs
D. T.	4- 6	7- 8				Spastic Diplegia	All Extremities
D. K.	5- 8	6- 5				Facial Paralysis	Right
E. F.	12-	14- 2	12-	9- 2		Prog. Muscular Atrophy	Back and Extrem.
F. E.	12-	15- 2	12- 7	10-		Spastic Hemiplegia	Left Side
G. A.	8- 1	10- 8	8- 3	6- 4		Friedriech's Ataxia	Legs
G. S.	11-10	13- 5	11-10	12- 4	Br. N.	Infantile Paralysis	Left Leg
G. S.	6- 3	8- 9				Spastic Paraplegia	Legs
G. M.	9-	12- 5	11-10	8-10	74	Pseudo-Hypertrophy	Legs and Arms
G. R.	5- 2	7- 1	6- 9	6- 4	93	Spastic Hemiplegia	Right Side
G. M.	7- 6	7-10	8- 7	7- 2	81	Muscular Incoordination	Legs and Arms
H. L.	7-	10-				Paralysis from Spinal Meningitis	All Extremities
H. M.	5-	6-	6-	4-10	Ret.	Spastic Monoplegia	Right Leg
H. E.	10-	13- 1	10-	6- 4		Friedriech's Ataxia	Legs
H. T.	12-	15- 1	12- 1	10-		Friedriech's Ataxia	Legs
H. M.	9-	10- 5				Relaxed Posture	Posture
I. B.	9-	9- 6	9-	9- 6	100	Incoordination	
I. H.	8-11	10- 2	8- 9	7- 3	Ret.	Tubercular Knee	Right
J. S.	15-10	16- 8	15-10	7- 8	48 H. Sub.	Ankylosis Hip after Old Septic Arthritis	Right
J. H.	13- 7	15- 6	(Mental Defective)			Scoliosis Mentally defective	Back
K. L.	3- 9	5- 6	4-10	4-	83 Ret.	Spastic Paraplegia	Legs
K. M.	11- 5	12- 6	11- 5	6- 4	63	Scoliosis Spastic Monoplegia Mentally defective Muscular Incoordination	Back and Right Leg
K. L.	18-	23-					
K. R.	4-	4- 4	4-	2- 4	60	Spastic Paraplegia	Legs
K. F.	3- 6	5- 5			Idiot	Mongolian Idiot	
K. O.	7-	9-			Idiot	Cervical Kyphosis Mongolian Idiot	Neck
K. R.	12-	15- 4				Spastic Paraplegia	Legs
M.	2- 8	3- 3				Spastic Hemiplegia	Right Side
M. M.	11- 9	12-	11-10	9-10	84	Spastic Diplegia	All Extremities
M. D.	14-	17-				Scoliosis Flat Feet	Back, Feet
M. R.	5-	7- 8				Spastic Hemiplegia	Right Side
M. F.	14-	17- 3	15-	8- 1		Spastic Hemiplegia	Right Side
M. M.	9- 3	9- 4				Bilat. Syndactilism hands	Hands
M. D.	7- 6	9-	7- 6	5-		Spastic Diplegia	Right Arm and Legs
N. L.	9- 4	9-10	8- 6	-11		Spastic Diplegia	All Extremities
P. B.	8-	12- 4				Infantile Paralysis	Right Leg Left Side Face
R. J.	3- 1	3- 4				Spastic Diplegia	All Extremities
R. P.	15-	18- 7				Spastic Hemiplegia	Right Side
R. G.	11- 9	13- 1	11- 9	5- 1		Scoliosis Subnormal	Back

Name	Age Entered	Present Age	Age Examined	Psych. Age	I-Q	Diagnosis	Part Affected
R. B.	3- 1	5- 4				Spastic Paraplegia Incoordination	Legs
R. H.	7-11	8- 6	8-	4- 4	55	Relaxed Posture	Posture
S. A.	13-	15- 6	14-	7- 2		Spastic Paraplegia	Legs
S. N.	11- 7	13-10				Scoliosis Flat Feet Mentally backward	Back, Feet
S. J.	13-	14- 9				Spastic Diplegia	All Extremities
S. J.	2-	2- 6	2- 1	1- 8		Spastic Diplegia	All Extremities
S. S.	13- 2	13-11	13- 3	11-	83	Kypho-scoliosis Flat feet	Back and Feet
S. C.	15- 4	16- 3	15- 4	6- 6	H. Sub.	Spastic Diplegia	All Extremities
S. D.	9- 8	10- 8	9- 8	5- 8	58 Sub.	Muscular Incoordination	All Extremities
S. W.	13- 9	15- 8	13- 9	4- 2	H. Sub.	Relaxed Posture Jacksonian Epilepsy Mentally subnormal	
S. R.	13-	14- 3	13-	11- 4	Ret.	Spastic Diplegia	All Extremities
T. T.	15-	17- 1				Spastic Diplegia	
T. R.	15-	19- 3	17- 8	12-	Ret.	Spastic Demiplegia	Left Side
V.R. F.	16- 5	16-10	16- 5	9- 6	58	Muscular Incoordination	All Extremities
V.W. L.	3- 1	3- 3	4-	1- 4		Muscular Incoordination	Legs
V. E.	15- 3	15- 9	15- 3	6-	Sub.	Spastic Diplegia	All Extremities
W. G.	3-	3- 6	3- 6	2-10		Spastic Diplegia	All Extremities
W. C.	4-	7- 4				Spastic Diplegia	Left and Right Arm
W. R.	4- 7	4- 8	4- 8	4- 4	93	Muscular Incoordination	All Extremities
S. W.	14- 6	14- 8			Adult	Rigid total round back	
A. W.	13- 3	13- 4			38	Incoordination	
F. W.	15- 2	15- 3			66	Spastic paralysis	
E. K.	15- 8	15- 9			62	Spastic paraplegia	
M. R.	13- 1						

On a recent visit to the cities of New York, Philadelphia and Boston I asked many orthopædic surgeons and speech defect specialists whether they were doing anything for the language ability of their orthopædic patients, and in most cases received the answer, "No, I never thought they could be benefited." It was not till I reached the University of Iowa in my search that I was rewarded by finding a speech clinic with an orthopædic surgeon who was alive to the necessity for speech training in crippled children and keen to hear what was being done here in Los Angeles.

Speech training alone as a biological necessity in the utilization of muscular coördination to express emotion, does some definite things for crippled children. First, it correlates muscular activity with mental images in the expression of emotion; Second, develops association paths in the brain; Third, develops more breathing power, more oxygen, better circulation, better voice; Fourth, increases inhibition of purposeless, energy-wasting muscular movement; Fifth, develops motor-mindedness; Sixth, strengthens and coördinates muscles of the tongue, lips, throat and cheeks; assists in the cure of drooling.

It is evident that only oral expression can be developed in a spastic, especially in right-handed cases. The attempt to hold a pencil or chalk so intensifies the spasticity that the effort results in breaking the pencil point or chalk, or in dropping it from the hypercontracted fingers. Small muscle movements are not attempted in the reëducation of a spastic child; only gross movements, slow and rhythmic, often with music or the metronome, and at first not purposeful, are used.

Goddard, in his "Psychology of the Normal and Abnormal," makes the statement that the pattern for action resides in the neurons and that the patterns are hereditary or acquired. Hereditary patterns must result from a persistence of impressions transmitted from parent to child. Granted that the crippled child is normal mentally, that is, he has a normal amount and distribution of brain cells, then he has normal hereditary *neuron patterns*. If the proper stimulus is applied, these neuron patterns can be awakened and normal responses evoked; hence training in muscular coordinations, gymnastics, physiotherapy, speech-drill, etc., can reasonably be expected to produce more activity of brain cells, more mental development, because all functions of the nervous system are facilitated by repetition (Herrick). The exception to this would be those cases of paralysis resulting from meningitis or infantile palsy where the disease has resulted in the actual loss of neurons.

Through the working of that principle in neurology as well as in physics known as the "Summation of Stimuli," a term used to express the fact that a nerve path once having been used, the nerve energy once passed over a certain line of neurons, those neurons are somehow modified or changed by that passage and the effect is permanent; it is never entirely lost. When a second stimulus comes, it not only passes over *that line* somewhat more easily because the pathway has been used before, but the effect is added to the previous effect and that path becomes the favored path (Goddard).

Then by association fibers any brain center may be stimulated. These facts are some of those at the bottom of the training of crippled children through speech-drill combined with gymnastics and physiotherapy.

The work is only in its early stages and this is a report only meant to show by the enormous percentage of cases requiring speech training, the practical place for a department for speech development in every orthopædic hospital.

Our progress is slow, but our results have been very satisfactory. We can definitely assert that speech reëducation has a definite place in the training of crippled children because, combined with physiological rest of the affected parts, and with physiotherapy, it does five things. First, it saves energy; Second, allows the development of coördination; Third, it improves nutrition; Fourth, develops mental ability, and Fifth, it increases inhibition, thereby increasing the saving of nervous energy.

In collaboration with members of the Orthopædic Hospital-School of Los Angeles, I have put into practice the following plan for the development of normal speech in spastic and other orthopædic cases.

The Director of Physical Education, Miss Sue Roen, and I, have found that our treatments overlap and that the more closely we cooperate the better the results obtained. The exercises given below have been found in practice to meet the requirements. In the great majority of cases modifications are necessary to suit the individual.

EXERCISES FOR SPEECH DEVELOPMENT IN SPASTICS, MOTOR PARALYSIS FOLLOWING INFANTILE PARALYSIS, MUSCULAR INCOÖRDINATIONS AND ATAXIAS.

1st, Absolute quiet and alone with patient.

2nd, Relaxing Phase.

- A. Metronome counting.
- B. Music—instrumental or vocal.
- C. Sing-song rhyme.
- D. Relaxing massage (stroking tense muscles).
- E. Tepid bath.
- F. Breathing.

3rd, All movements slow and rhythmical.

4th, Extension work only.

- A. With assistance if needed.
- B. Against resistance.

5th, All gross movements (mass movements).

Gradually work toward finer movements. Tensing weak groups and relaxing contracted groups alternately.

- A. Muscle movement for arm—out—away—up.
- B. Muscle movement for leg—out—away—back.
- C. Muscle movement for trunk—balancing between upright supports. Walking with feet separated (straddle gait) and kept apart by upright board. In subnormal cases the inclined board is used.

Side flexion, lying prone—which takes in head work, back and leg work.

NOTE: Swimming as a whale or hippopotamus and coming up to blow will answer the requirements in the hyperextension work and it includes arm, head, back and breathing exercises.

It is essential to make a game or play out of the work.

In a subsequent article supplementary to this one I will give in detail the drill in breathing with and without the limb movements, and the phonetic drills and vowel practice I have found to meet the requirements in these cases.

RESULTS AND CONCLUSIONS.

Owing to lack of trained assistants the speech development has been tried in only a few cases, but the results justify the conclusion that definite progress has been made. Two (2) boys, eight (8) and ten (10) years respectively, who could not tell one letter or sound from another or read the simplest words of one syllable or perform tasks in simple numbers, have learned to read and figure. They now read silently and aloud simple stories and poems. Two (2) cases of stammering have been arrested and two (2) cases of lisping, the "oral inactivity" of Dr. Blanton, have been corrected. In addition the language ability of five (5) has been improved and two (2) cases of motor paralysis, following epidemic poliomyelitis, have made progress in speech.

Drooling has ceased almost entirely in every case in which speech drill, muscle training, physiotherapy and other orthopædic treatment has been instituted.

The mental development, language ability, walking, eating, drinking and playing of all our spastic cases have improved so greatly under this form of treatment that we are obliged to conclude that the pessimistic attitude of many observers relative to mental training of crippled children must undergo considerable modification in the light of our achievements.

The mental tests were made by Mrs. Trippet, the Clinical Psychologist.

Thanks are due to Dr. Charles L. Lowman for helpful suggestions, and to my wife for assistance in training.

SUMMARY.

Spastics	39
Incoördinations	10
Faulty Posture	7

Ataxias	6
Infantile Palsy	5
Subnormal	3
Facial Palsy	1
Tubercular knee	2
Epileptic	2
Pseudo-hypertrophy	1
Progressive muscular atrophy	1
Miscellaneous	5
	82

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DISCUSSION OF DR. STIVERS' PAPER.

Before the discussion Dr. Stivers showed six cases; three, of Friedrich's ataxia; two, of spastic palsy; one, of muscular incoördination, all exhibiting marked defects of voice and speech.

Discussion opened by Dr. Charles L. Lowman (he said in part): I should like to express my appreciation and approval of Dr. Stivers' paper and emphasize one or two points.

First, we have noted that the training of the speech mechanism undoubtedly aids in other aspects of the psycho-motor development in our work with legs and arms, especially the latter, as the arms and hands are used in gesture and in place of and with speech under impulses which are racially old and thus more easily obtained than some of the other movements.

Second, as surgeons we have been too prone to think of the muscles as so many cords fastened to bones to be pulled this way or that and to be handled with impunity, surgically. We must begin to recognize that muscles are actually part of the brain mechanism in that they are the instruments of expression for the mind.

The training in these spastic cases requires an analysis of the mental and physical faults and the appreciation of normal and necessary sequence such as the doctor has mentioned in relating speech movements and body or arm movements.

I wish to heartily endorse the statements he has made and congratulate him on this very able presentation.

DR. F. L. ROGERS of Long Beach: Dr. Stivers has contributed a very helpful paper. He is doing real constructive work with these handicapped children who are being fitted to take their places in the world. His altruism in insisting on the recognition of the rights of the crippled child will evoke an enthusiastic response in the heart of every right-minded physician. His plea for a special recognition of their peculiar mental status is in the line of constructive medicine. His work with defective speech is making it possible for these children to emerge from the "shut-in" to their rightful position.

DR. AMES of Los Angeles: It is a very important subject dealt with by Dr. Stivers, with a fine regard for the social aspects of these cases. The problem is to keep the institutions of the country from being overcrowded by supposedly mentally deficient children, and the work of Dr. Stivers will bring to the attention of physicians and educators the importance of differentiation between the crippled, speech defective child and the mentally deficient, crippled child. It is an original and praiseworthy work on Dr. Stivers' part and he deserves our thanks for calling our attention to it. How soon after beginning speech treatment does he notice any psychological effect on the child?

DR. INGRAM (Neurologist): The paper is a demonstration of the practical importance of the value of special motor and speech training in a large group of neurologic cases. Rehabilitation and the keeping alive of muscular function after various organic nervous diseases, is a most useful thing to have patients offered them. There should be a correct diagnosis made in every case as to whether any form of aphasia exists.

MISS CHAPIN (Supervisor of Speech Training, Los Angeles Public Schools): I wish that every teacher in Los Angeles could have heard this valuable paper. Dr. Stivers is doing a wonderful work in the building up of the speech of handicapped children. We who are doing the speech corrective work in the public schools realize the importance of enlisting the help of physicians everywhere to take more interest in these cases.

DR. DON P. FLAGG (Psychologist and Neuropsychiatrist): When we remember that in 1917 there were two hundred thousand (200,000) stuttering children in the schools of the United States this is surely getting to be a big economic problem. It has been well said by a neurologist of Columbia University that every teacher and parent should be taught the fact that normal speech and normal breathing are the foundation of a normal mind. Aside from the crippled children, I believe the psychology of the speech cases shows a fear of failure.

DR. STIVERS (in closing): The keynote to the solution of the problem of crippled children and mentally deficient children will be found in better race control, better birth control, better eugenics, better obstetrics, pedi-

atrics and child welfare. Physicians everywhere are getting a broader conception of the value of systematic training of the muscular in order to reach the mental system.

If, through my work, some crippled children are made self-supporting and learn to talk as other children do, I shall feel repaid. The entire subject of the prevention of cripples and teaching them to be useful members of society should be a State affair under the guidance of physicians and social and industrial workers.

ALEPPO BOIL; ALSO CALLED DELPHI BOIL, KANDAHAR SORE, ORIENTAL SORE.

By A. K. Yoosuf, M.D., Worcester, Mass.

This interesting and remarkable skin lesion or disease was brought to the attention of the European physicians in the latter part of the eighteenth century. It came from Aleppo, where Russell[1], Hasselquist[2], Holland[3] and Volney[4] found it to be endemic and gave some account of it under the name of Aleppo Boil. Attention was first directed to it by Alibert, Desant and Requin, who gave an account of it from the information supplied by the French Consul at Aleppo; but most of our knowledge is from the work of Guilhon, who, in company with Pariset, on his scientific journey to the Levant, published the results of his inquiries in regard to this disease. At first the opinion was held that the malady was confined only to Syria and Aleppo, but it was afterwards proved that this disease was prevalent in other parts of Asia Minor as well as in Central Asia, in India, at a few points in the Southern Peninsula of Europe, in the African States, and on the Mediterranean borders. Considerable areas of the disease occurred on the banks of the Muluia in Morocco, in numerous oases in the Algerian desert, in Suez and Cairo, and in Killis Aleppo-Aintab. It is unknown among the Bedouins and the population of the Kurdish Highlands. It is found in Mesopotamia in the whole plain between the Euphrates and the Tigris; from Harpoot to Diarbekir downward through Orfa, Masul and Bagdad, as far as Basra; it is prevalent in Persia, Teheran, Karan and Ispahan, and in the Indian territory near to the Afghan frontier. The people in these affected areas do not worry at all, as they consider it a harmless malady as long as it has left the nose intact and the eyes in their sockets without causing the falling of the eyelids.

Some observers have given different accounts of the type and clinical history of the boil, but there is a good deal of uniformity in its appearance and developments.

Clinical Appearance.—The skin lesion is presented without any constitutional disease or prodromic symptoms on exposed parts, the boil beginning at first as a round, red spot with a very slight degree of nodular thickening, gradually increasing to the size of a pea or a bean. The red area begins itching. Occasionally the lesion becomes larger. After the boil has lasted some time — maybe a few months — the lesion discharges serous exudate from the central opening. This later becomes sero-purulent, forming a crust often of considerable thickness, adherent to the skin. As this crust becomes thicker the nodule in the boil undergoes a disintegration and an ulcer results. The size of the ulcer is from 2 to 5 cm. in diameter. The edges of the ulcer are irregular, the process extending down to subcutaneous tissues and causing a grayish exudate.

The usual complications may appear, as erysipelas and lymphangitis, but these are rare. When the suppurating process has gone on for several weeks or months, the bottom of the ulcer presents a healthy granulation capped by whitish crust, in due time leaving a cicatricial surface. When the boil is on the face, disfigurements of the nose, cheek, and lower eyelid may result.

This malady affects all parts of the body, but most often the face—the cheek at the angle of the mouth or the tip of the nose. It frequently appears over the hand and fore part of the arm. I had the lesion in a most unusual place, over my left eyebrow at the centre of my cheek, and on my right thigh.

The duration of the disease is from six months to a year — hence the popular name is given to it of "yearly sore or boil." Many ladies have been disfigured just on account of this malady. In Ispahan, Persia, there is a proverb referring to the disfigurement of the countenance: "Look at only one side of an Ispahan woman's face."

The Etiology of the Lesions.—So far, we have not complete knowledge of the nature of this disease. I believe that the geographical area of the disease is in some way dependent on *climatic influence*, and I have observed that it begins in late summer or in autumn—September, October or November, in subtropical countries, and the first part of the cold season in the tropics.

The *nature of the ground* or the *soil* has no significance for the occurrence of the boil. Authors such as Bertherand and Dickinson have laid a good deal of stress on malarial soil, although many malarial soils and swampy places are free from this malady. It occurs to the same extent among poor and rich, among high-class society. Among the Moorish and Arab population of Algiers, many believe that it is due to the use of unstained dates, which is nothing but superstition.

The very earliest writers upon this disease in Syria — Hasselquist, Russell and Volney —

stated that the inhabitants of Aleppo believe that the water from brook *Caik* had the power to cause this malady. This belief was accepted by Guilhon and Jolt and Willemin, who thought that the area of the disease around Aleppo extended just as far as the stream of water used by the people for washing purposes, whereas the boil did not appear in neighboring villages using water from different sources.

In Algiers, too, the popular belief is that the drinking water causes these skin lesions. French medical writers, such as Poggioli, Massip, Weiss, Netter, Manoha, etc., favor this theory. In India, Frazer, Alcock, Candy, and others who have made thorough study of this disease sustain the water theory. The boil has been endemic from time immemorial. As to the composition of the water at Aleppo, there is a large amount of gypsum, according to Jolt. In Punjab, according to Frazer and Candy, there is a great amount of nitrates; around Diarbekir and Harpoot a high degree of hardness to the water, most likely due to a considerable amount of lime and magnesia. Some French medical men claim the cause is due to the amount of chloride of sodium.

On the other hand, there are others who do not put great stress upon the water theory in causing this boil. Thalozen calls attention to the fact that no sort of causal connection between the disease and the drinking water exists. Laveren says the water of Oued-Kantara in the oasis of Biscara was so rich in salts that now it is used for irrigation, while drinking water is from cisterns, yet the boil continues just the same as before.

The Parasitic Theory. — Though the disease is spread over a large part of the country, it is confined to particular spots on imaginary lines, while surrounding neighborhoods are free from it. Generally, it is found in the permanent population. Therefore, we may easily conclude that it is a local disease and diffused within those limits. Accordingly, it has no relation to the soil or climate or unhygienic conditions, so we may look for some specific cause. According to Virchow, *the boil is a parasitic malady.*

Fleming found small corpuscles with highly refractive membranes, which he supposed were the ovae of a parasite. Smith found cells of various size and form and held the same opinion as Fleming. Recently, some German scientists, who were engaged in Asia Minor and some of the tropical regions, have carefully studied the nature of this disease and have discovered a form of animal parasite which causes this form of ulcer belonging to the family of Leishman Furunculosa. Some think it similar to that of syphilis, sleeping sickness or continued fever, which has no clinical similarity to these diseases. My friend and teacher, Dr. Altoonyan, who has resided in Aleppo many years, has furnished some specimens which Dr. Eliot, after repeated examinations, summarizes as follows: "The disease appears confined to the epidermis and corium, extending through the latter quite to the subcutaneous tissue. The area of the disease seems composed almost entirely of small inflammatory or formative cells and epithelial elements. The line of separation between the diseased portion and the surrounding tissue is distinct, there being no graduation between healthy and diseased tissue. The hair follicles are intact, and there is no evidence of the disease in the glandular structure. No cryptogams or other microorganisms are present in sections examined."

Riehl found giant-cells present quite frequently, and, according to Leloir, the sebaceous gland and less markedly the sweat glands in the centre of the back are destroyed.

The Theory of Flies and Dogs.—The onset of this sore is similar to that of vaccination. Some years ago, a physician residing at Teheran, Persia, attempted to find the cause of this "bite." After some investigation, Dr. Gatche found that flies living on the bodies of dogs carried this vaccine germ in their trunks, heads and arms, and he immediately concluded that flies are the common media carrying the germ, not only to the human body but to animals as well. He claims that these flies never produce pain while biting, and recites the case of his servant, on whose hand he observed a fly comfortably resting. When the fly left, a small bite was observed, which later developed into an oriental sore.

Dr. Bazil believes that dogs carry these germs to men, and mentions the fact that while in Bagdad, in 1870, in a town named New Choogha, there were many cases of Aleppo boils, nearly every household being affected. On his second visit, in 1902, he was surprised at the diminished number of oriental boils—due, he believes, to the reduction in number or to the non-existence of dogs. If the doctor's statement is accepted, the population of Constantinople and those parts of Asia where the boil does not exist, should have it, because of the number of dogs. The City of Constantinople, before the Constitutional Government, was the Mecca of dogs, but Aleppo boil was not prevalent among the people.

In regard to communicability of the disease, Drs. Deparet and Bait, and Duclaux and Heydenrich instituted a search for a parasite in the boil. They have detected a micrococcus and inoculated both men and animals, inducing this disease. Earlier experimenters, such as Palak, Vandyke, Carter and Wartabet, experimenting with inoculation of themselves, have not succeeded in producing the disease. Fleming, inoculating himself, attained a positive success. Therefore, we must accept the theory that this disease is caused by parasites; second, that it

is communicable. It is an interesting fact that the incubation period is several weeks or months.

Treatment.—In the old country, the people use copper sulphate as a caustic. When the boil appears just as a bite, they squeeze and crush it. The women apply to the boil some sort of astringent dressing, changing it every day, as the serous discharge covers the dressing and runs down to the healthy part. At its early appearance, the application of ice has abated the sore.

Injection of methylin blue around the edges, or two to three centigrams of Heckle's solution, 5 per cent. carbolic acid injection or bichloride solution of the same strength, have cured the boil. The task of treatment is difficult when the boils are large and few, as after treatment an ugly scar, something like a burn, is left. Another difficulty is that, though it is called a yearly sore, it often lasts longer, mine lasting two years.

Recently salvarsan and neosalvarsan have been used with success. It is natural for the physician to think that this sore has some relation to syphilis. Blood examination has been negative in most cases. A few cases have been treated by x-ray with little success. I have treated a few cases by x-ray without a good result. I have seen cases which had existed for years in the old country disappear without treatment in this country.

Dr. Altoonyan, of Aleppo, is using tincture of iodine, but it seems to me that the chronic sore is too obstinate to yield easily to this treatment, particularly Bombay ulcer, in which the physicians tried many methods of treatment, but with little success. Rawl[5] thought it might be desirable to attempt to make a curative vaccine, much on the principle of Wright's staphylococcus vaccine for furunculosis.

In oriental sore Lieshmaniosis, by intravenous injection of salvarsan, the following results were obtained: Sixteen cured (blood positive), or nearly cured; eleven much improved; two appeared unaffected. Complete excision or cauterization is recommended, but either procedure leaves an ugly scar. Large doses of quinine and arsenic are said (Besmer-Rankin) to have a favorable influence in promoting the healing of the ulcers.

All these treatments, however, are in experimental stages. Some day, I hope the medical profession, with laboratory aid, will find a complete cure for this skin lesion, which causes the disfiguration of so many people.

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THE NATIONAL HEALTH COUNCIL.

BY D. B. ARMSTRONG, M.D., NEW YORK,
Executive Officer,
AND
JAMES A. TOBEY, WASHINGTON, D.C.,
Washington Representative.

TEAM play in public health has been urged by far-sighted sanitarians for many years. As voluntary health agencies have increased in number and scope the necessity for coöperation and coördination of their activities has been accentuated. The following list shows the chronological development of the more important of these voluntary associations:

1844—American Medico-Psychological Association.
1847—American Medical Association.
1872—American Public Health Association.
1874—American Purity Alliance.
1876—American Association for the Study of the Feeble-minded.
1876—American Academy of Medicine.
1881—American Red Cross.
1885—Conference of State and Provincial Health Authorities of North America.
1899—American Hospital Association.
1901—National Association for the Study of Epilepsy and the Care and Treatment of Epileptics.
1904—National Association for the Study and Prevention of Tuberculosis.
1904—National Child Labor Committee.
1906—American School Hygiene Association.
1907—Committee of One Hundred (of the American Association for the Advancement of Science) on National Health.
1908—Committee on the Prevention of Blindness, Russell Sage Foundation.
1909—American Association for Study and Prevention of Infant Mortality.
1909—National Committee for Mental Hygiene.
1909—Rockefeller Sanitary Commission.
1910—Council on Health and Public Instruction, American Medical Association.
1910—National Housing Association.
1911—National Mouth Hygiene Association.
1912—American Social Hygiene Association.
1912—National Organization for Public Health Nursing.
1913—American Society for the Control of Cancer.
1913—American Posture League.
1913—American Safety Council.
1916—American Association of Industrial Physicians and Surgeons.
1917—Child Health Organization of America.
1918—American Conference of Hospital Service.
1920—Association of Women in Public Health.
1920—National Child Health Council.
1920—National Health Council.

The first proposal that existing health organizations get together seems to have been made in October, 1912, by Dr. F. R. Green, secretary of the Council on Health and Public Instruction of the American Medical Association. As a consequence of this suggestion 50

organizations were invited to a conference in New York in April, 1913. Thirty-nine sent representatives. A committee was appointed to consider the entire question of public health activities and the ways in which they could be improved. The secretary of this committee, Professor Selskar M. Gunn, made a survey of the field and reported in May, 1915. He found 24 organizations having a primary health function, of which 10 could be classed as major public health organizations. Although it seemed to be generally agreed that coördination was desirable, little or nothing resulted from the report, owing to the war and other factors.

A vigorous proposal that the American Public Health Association take the lead in bringing about coördination of the national health agencies was made in December, 1918, by George E. Vincent, president of the Rockefeller Foundation. At that time he stated that there were 57 national societies interested in public health, 28 of which devoted all of their energies to some phase of it. As a result of his address the board of directors of the association called a conference; after various meetings a council of 17 national health organizations was formed, but an active program failed to materialize. These 17 agencies included: American Red Cross, American Child Hygiene Association, Child Health Organization, American Social Hygiene Association, American Pediatric Society, National Committee for Mental Hygiene, Conference of State and Provincial Health Boards, Association of Industrial Physicians and Surgeons, American Society for the Control of Cancer, National Housing Association, Life Extension Institute, National Organization for Public Health Nursing, National Safety Council, American Public Health Association, the National Tuberculosis Association, and the National Child Welfare Association, with the United States Public Health Service. While a few meetings of the Council were held, the organization eventually ceased to exist.

The spirit of coördination would not be put down, however. During the summer of 1920, one of the present writers (Armstrong) made an intensive health coördination study. This survey was conducted under the direction of Dr. Livingston Farrand, Dr. W. S. Rankin and Dr. C. J. Hatfield, and was financed by the American Red Cross. In his presidential address before the American Public Health Association in September, 1920, Dr. Rankin referred to this study and discussed coördination at some length. At this time data collected by Tobey of the American Red Cross showed that there were at least 139 national organizations which had some sort of a public health program, though only about a score of them engaged in health work as a major activity.

The report on this survey was discussed at a conference held in Washington in October, 1920. At a second conference held in Washington in December of the same year the National Health Council was definitely created. A short time previous to this meeting there had also been formed the National Child Health Council, composed of six national agencies interested in child health. This latter special Council became one of the members of the broader general Council, the full membership of which included the following:

American Public Health Association.
American Red Cross.
American Social Hygiene Association.
Conference of State and Provincial Health Authorities of North America.
Council on Health and Public Instruction of the American Medical Association.
National Health Council, which includes the following:
  American Child Hygiene Association.
  Child Health Organization of America.
  National Child Labor Committee.
National Committee for Mental Hygiene.
National Organization for Public Health Nursing.
National Tuberculosis Association.
United States Public Health Service (Conference Member).

Immediately, the American Society for the Control of Cancer was admitted to membership. Provision for future increase of membership was made in the constitution of the Council.

It will be seen that the 14 organizations which are direct, indirect or conference members of the National Health Council cover the field of public health through infant and child hygiene, school hygiene, nursing, medicine, mental and social hygiene, tuberculosis and general administrative activities. Each of the members appoints a representative and alternate to represent it at the quarterly meetings of the Council. The officers of the Council are: Dr. Livingston Farrand, chairman; Dr. Lee K. Frankel, vice-chairman; Dr. S. J. Crumbine, recording secretary; and Dr. W. F. Snow, treasurer. The staff includes the authors as executive officer and Washington representative, with Lawrence Marcus, executive assistant, and Helen B. Eveline, secretary and assistant.

The finances of the Council are derived through dues and from the purchase of services by member organizations, and contributions from foundations, other organizations and individuals. The budget for 1921, contributed chiefly by the American Red Cross, was $21,000. The Council's experience during the first year seemed to justify an increase in the budget for 1922 to $39,000.

In January, 1921, the Council began active operation and offices were established in New York and Washington. The latter is the national headquarters and occupies space in the American Red Cross building. The principal activity of the Washington office has been to

report on legislative matters. Bi-weekly statements on national health legislation have been issued since the 67th Congress was called in special session by the President on April 11, 1921. Up to the first of May, 1922, 25 of these reports have been published and nearly 200 bills relating to some phase of public health have been abstracted and progress followed. In coöperation with the United States Public Health Service, six bi-weekly bulletins on state health legislation have been issued. These bulletins contain information as to the health measures before the ten states whose Legislatures have met in 1922. Both the national and state legislative reports represent the first attempt in the history of public health to issue current, impartial information on health legislation. The circulation of the national statements is about 500 copies and they are sold at cost price, $4 a year.

Another activity of the Washington office has been to compile information regarding the various federal bureaus which engage in health work. Five reports have been issued, as follows:

Report on the Division of Vital Statistics, U. S. Bureau of the Census.
Report on the Children's Bureau of the U. S. Department of Labor.
Report on the Women's Bureau of the U. S. Department of Labor.
Report on the Division of School Hygiene of the U. S. Bureau of Education.
General Report (with chart) of the Health Activities of the U. S. Government.

Nearly a thousand copies of these reports have been distributed to interested persons. The information contained is authentic, having been approved in each case by the chief of the bureau. In general, the reports outline the legal authority of the bureau, its history and development, organization and personnel, appropriations, current activities, and coöperation with other agencies.

In New York the National Health Council has taken the initiative in bringing about a form of practical coördination. This has been accomplished by assembling the headquarters of nine of its members in one building. In addition, 13 other agencies interested in health work occupy space here. This arrangement is in the Penn Terminal Building at 370 Seventh avenue, where the entire 15th and 16th floors are given over to the offices and equipment of these health agencies. The administration of this joint office scheme is in the hands of a common service committee. The committee offers various common facilites, such as joint library, accounting service, editorial service, letter service, purchase and sales department, shipping service and several mechanical services. By means of this pooling of interests, the cost of operation is reduced, equipment simplified, and greater efficiency is attained.

An information bureau for members of the Council has been established at the New York office. A Monthly Digest, a Library Index, and a Weekly Common Service News are issued. A current calendar of conference dates is maintained, and special temporary services are offered to members. Examples of the latter include the management of the Health Institute of the American Public Health Association during its convention last November, and the operation of a Rotary Health Week in coöperation with the International Association of Rotary Clubs and the members of the Council.

In order to coördinate effectively the actual work of the members of the Council, a number of inter-staff committees have been formed. These include a committee on publicity and education, with sub-groups on (a) publications, (b) health plays, (c) exhibits, and (d) health films; a statistical committee; a conference of business managers; a committee on health of employees; and joint committees to work out relations between the National Health Council and the National Child Health Council; and also between the Council and the American Public Health Association. Other activities include the study and development of state health councils, and a projected field service.

The National Health Council has completed over a year's existence. During that time it has been in successful operation and has justified the prediction that the formation of such a Council would mark an epoch in the history of public health in this country. It has demonstrated that a group of autonomous national organizations can work together in harmony and concord, to the end that duplication and overlapping may be reduced and progress and efficiency in public health work increased. As an auxiliary to the official agencies which are charged with the health of the people, the National Health Council fills a definite place in the field of public health. The future will enhance the opportunities for concrete service in this important sphere of human progress.

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(Arranged Chronologically)

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THE PRENDERGAST PREVENTORIUM.

THE following extract of a part of a letter written by Dr. John B. Hawes, 2nd, gives further information concerning the Prendergast Preventorium and will assist those interested in the same line of work:

"We plan to open our Preventorium, known as the Prendergast Preventorium for Children, on Wednesday, May 10. We start with 20 children taken from the clinics of the Boston Sanatorium, Boston Dispensary and Massachusetts General Hospital. These children must all show a positive Von Pirquet skin reaction and must have been exposed to tuberculosis. In addition to that there will be an x-ray taken in every case, while likewise all other possible sources of infection or causes of symptoms, such as diseased tonsils, adenoids, teeth, etc., we hope to eliminate beforehand.

"The old Prendergast Camp building has been entirely fixed over and repainted, and is now a charming spot. The city of Boston has loaned us for an indefinite period a voting booth which will be used as a playhouse. Miss M. Alice Gallagher, who has been connected with district nursing, etc., here in Boston for many years and who likewise had extensive experience during the war, will be in charge of the children, with Miss Mary P. Nicoll as her assistant. Dr. Randall Clifford will have immediate charge of the medical work, working under the supervision of Dr. James J. Minot and myself. Miss Isabel F. Hyams and Dr. Minot have both served on the old Prendergast Committee for many years and are giving an immense amount of service, time and thought to this undertaking.

"The children will be kept at the camp as long as possible. We regret that our funds this year will not permit us to keep the camp open all the year round. We hope, however, to be able to demonstrate to the people of Boston by our results with this small number of children that there is urgent need of such an institution as this to be run all the year round on a larger scale. A careful study has been made by Miss Bernice W. Billings, executive secretary of our association, and others, of the detailed methods of treatment, etc., carried on in other preventoria, such as the ones located at Providence, R. I., Farmingdale, N. J., Toronto and elsewhere, so that we can benefit by the experience of others."

INSTRUCTIVE DISTRICT NURSING ASSOCIATION.

THE health conditions during the month of April have been excellent, with a definite reaction from the excessive sickness of the first three months of the year; 2,512 new patients were taken on; 25,595 visits made.

Grip, bronchitis, pneumonia and other respiratory diseases, which have been the chief cause of the pressure, have dropped back to normal—320 new cases of these diseases being admitted. Of measles, 121 new cases were admitted, 51 more than at this time last year. The increase in new cases of diseases of the heart, which was recently noted, continues this month. There was also an increase in new cases of cancer.

The bedside nursing care of very sick patients was still heavier than normal, because of the patients continuing under care from the preceding month.

One hundred and seven children were treated in the seven dental clinics held during the month in the Hyde Park Health Center. This clinic, in charge of a graduate of the Harvard Dental School is held two full days each week.

Practically nothing but preventive dentistry is done. Last year 453 patients were treated, 28 of them adults. This year an attempt is being made to limit the age of patients to 9 years. Special emphasis is laid on the preschool period Many of the patients are referred directly from the Child Health Clinic, which is also one of the Center activities. The dental clinic is open to any child in Hyde Park whose family income, per capita, does not exceed a stated sum. A nominal charge, sufficient to cover the cost of the material, is made.

The clinic was established because of the great need, 95 per cent. of the children having been found with defective teeth in the demonstration of dental prophylaxis which was made by the Association in the first and second grades of the Hyde Park schools in 1918.

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AN ACCEPTABLE FORM OF STATE MEDICINE.

THE term "state medicine" has, for several years, been the theme about which discussion has brought forward expressions of bitter resentment. The mental reactions have in some instances seemed to indicate a rather hazy comprehension of the import and application of the words. Many persons suspect that health authorities are seeking to usurp the prerogative of the practitioner and drive him away from his legitimate field; and even though the importance of work done by health officials is recognized, such persons would theoretically restrict state departments to the application of the principles of preventive medicine and the dissemination of information. In other words, the state should not, according to some critics, deal with individual patients or promulgate policies which might interfere with curative medicine. But even the most fearful would welcome that type of coöperation which provides, without cost to the practitioner, reliable preparations for the cure of the diseases found among his patients.

There was a time when even cowpox virus was an expense to the doctor, and some practitioners of limited means or with economic tendencies carefully removed the crust from the human vaccination sore and macerated it for further use. This humanized virus was often kept between two pieces of glass, carried in a paper envelope in the doctor's pocket and drawn upon from time to time with increasing septic potency. Fortunately, antivaccinationists were not so critical in those days or there would have been a more extended parade of objectors before legislative committees.

Many changes have followed one another since the State Board of Health placed cowpox virus in the hands of doctors without expense. Such habits have given way to better methods, due both to better knowledge and Health Department coöperation.

Recent circulars sent broadcast by our State Department of Public Health give the details of the care of vaccine virus, the proper method of its use and some general observations relating to vaccination. In addition to free distribution of vaccine virus, physicians are given, free of charge, antipneumococcic serum, bacterial vaccines made from the three typhoid diseases, diphtheria antitoxin, the toxin-antitoxin mixture, the outfit for the Schick Test, and the antimeningococcic serum. The circulars relating to all these products present clear-cut statements covering the directions for preventive and curative treatments, with full explanations relating to anaphylaxis, thereby saving the doctor's time in reading upon these subjects.

The fact that the Department of Public Health is licensed under the Government, after inspection, guarantees the quality of the products.

Occasionally there has been some disappointment expressed because the production of antitetanic serum remains in the hands of private corporations, but the reason is obvious, because it would be unwise to attempt the manufacture of this product in close association with the others referred to. The state has already incurred great expense incident to the manufacture of the seven varieties referred to, and cannot enter upon the last mentioned without the creation of a separate plant. If, however, the state sees fit to provide the necessary funds, this extension of the Department of Health functions would be welcomed.

No one makes objection to the distribution of these biologic products, because it is apparrent that this form of state medicine or paternalism in no way invades the field of the clinician. It is evident that this sort of state medicine, although it has displaced, to some degree, commercial products, is beneficial both to the people and the practitioner, hence it is endorsed. Thus far this custom has been justified by the results obtained. The conception and growth of this custom has reflected a laudable desire to enlarge public service, and however much other forms of state medicine, as

interpreted by some, may have elements of danger to private practice, may we not reason from the past and find consolation in the evidence of honest coöperation and absence of ambition for bureaucratic power?

There has been a marked change of opinion in the past decade relating to so-called state medicine, for wherever it has been shown that any measure has promise of benefit to the people and the building up of the efficiency of medicine, doctors have gladly endorsed such plans. Advocates of extreme policies suggestive of state control of medicine have found that the doubtful customs of other nations are carefully studied and if such are unable to conform to the ideals of our country they are seldom adopted. The temper of our people seems to be distinctly opposed to disrupting the intimate relation of doctor and patient or of degrading the practice of medicine to the panel system or state regulations of fees. But when it can be shown that humanity and human progress require useful changes in our laws and customs the medical profession will be ready to endorse them.

The extension of state functions should be confined to plans for specific measures dealing with a particular problem rather than those broad and almost unlimited fields in which there are possibilities of hitherto unknown complications. Every argument for extension of state policies should be carefully studied and made public before attempting adoption of them. We are fortunate in having many critics of proposed legislation.

THE ORGANISM OF TYPHUS FEVER.

IT has recently been stated in newspapers that Dr. N. Kritch, working in the Biological Institute in Moscow, has announced her discovery of the germ of typhus and the fact is said to have been confirmed by Dr. Walter P. Davenport of Chicago. According to the account which we have seen, a coccus was recovered from the brain in 11 out of 12 cases after death and the cultures were made in human splenic tissue. Inoculation of guinea pigs with the organism is reported to have produced "typhus symptoms." The discovery was announced at a meeting of physicians in Moscow.

From the limited information at hand it is impossible justly to form an opinion as to the significance of the findings of Dr. Kritch, but, before the discovery can receive general acceptance by physicians, the facts must be known in detail and confirmation must be obtained by other observers.

Meanwhile, an attitude of open-minded scepticism should be maintained. This attitude is more than justified because, during past years, many different organisms have been thought to be the cause of typhus, but complete confirmation of these supposed discoveries has not followed.

Wolbach and his associates, moreover, have recently obtained important data in Poland regarding the intracellular form of Rickettsia. Their work confirms the findings of other observers and amplifies them in such a way that the evidence pointing to the intracellular Rickettsia as the probable cause of typhus is now very strong.

A LEGISLATIVE COMMITTEE UNDER THE AUSPICES OF THE A. M. A.

THE JOURNAL has previously suggested the advisability of the formation of a committee on legislation that would represent the profession of the United States. Since the A. M. A. is the largest medical society in the world and should represent the best knowledge relating to public health matters, it is logical and right that the government should have advice on those matters which are more clearly understood by physicians.

Although the *Journal* of the A. M. A. does deal with problems of interest to physicians through its editorial department, such expressions of opinion are the reactions of individuals, hence unanimity of opinion put forward by a group of representative men ought to carry more weight than suggestions by an editorial writer. It is true that there have been conferences on legislative matters by members of the A. M. A., but these meetings have been more or less unofficial, and, although of advantage in securing and disseminating information, have not been regarded as carrying the endorsement of the profession as a whole.

There may be some objection to the formation of an official legislative body on the ground that it would intensify the suspicion that the medical profession intends to establish a lobby and try to control legislation. One can appreciate the tendency to emphasize the time-worn assertions relating to the so-called medical trust whenever the leaders in the profession show any activity in public affairs, but these contentions are not true and illustrate the resources of the opposition. Although these catch phrases evidently have some meaning and influence with those who are not in sympathy with progressive medicine on the one hand or conservative attitudes toward innovations on the other, they could not be used more effectively than they are now.

It is possible that physicians have been too sensitive or conservative, or even too fearful,

in the presence of opposition, to secure effective recognition. The world respects courage and action far more than complacency. Diplomacy has its place, to be sure, but when vital issues are at stake and we are sure of our ground, enthusiastic and persistent battling for the right may carry farther than the use of simple statements couched in the conservative language in common use by scientists. We must understand that the men who make our laws are trained in the public forum. It is difficult to secure their attention unless pleas are presented in forceful fashion and backed by influential groups.

It is hoped that the House of Delegates of the A. M. A. may feel that some organization should be perfected to which the profession may from time to time present ideas relating to legislation, with the expectation that suggestions will receive careful consideration and definite policies will be adopted.

The opponents of medical progress are aggressive, constantly active, and will try to break down laws which were made for the protection of the people, or secure the enactment of others which will give incompetent practitioners authority to prey upon the credulous.

Dr. Charles E. Mongan, representing the Massachusetts Medical Society in the House of Delegates of the American Medical Association, is considering the advisability of presenting to the House of Delegates resolutions, which, if adopted, will provide for a committee on legislation. Each state will be represented in this committee, according to the plan under consideration.

THE FEDERAL MATERNITY AND INFANT WELFARE ACT.

The first meeting of the Board having the administration of the law under this act was held April 18, 1922. Miss Grace Abbott, chief of the Children's Bureau, was elected chairman. The other members of the Board are Surgeon-General H. S. Cumming and John J. Tigert, Commissioner of Education.

The provisions of the law have been accepted by forty-one states, either by the governors or legislative action. Twenty-three states have secured from the Board approval of plans for administering the law and can go forward with the work. These states are: Alabama, Arizona, Arkansas, Connecticut, Delaware, Florida, Georgia, Idaho, Indiana, Kansas, Kentucky, Mississippi, Missouri, Montana, Nebraska, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Virginia and Wyoming.

Interest centers in the validity of the law now that the Attorney-General of Massachusetts has declared the law unconstitutional. Since the Federal Government has to secure much money through taxation the question will arise as to the legality of taxes levied on non-contributing states. The next logical step will be to ascertain the opinion of the Supreme Court of the United States.

NEWS ITEMS.

The annual meeting of the Massachusetts Medical Society for 1922 will be held at Boston June 13 and 14. A detailed program will appear in The Journal of June 8.

Dr. Allen B. Kanavel of Chicago read a paper on "The Diagnosis of Surgical Abdominal Lesions" before the Springfield Academy of Medicine, May 9.

Death Rate in Boston.—During the week ending May 6, 1922, the number of deaths reported was 236, against 209 last year, with a rate of 16.11. There were 43 deaths under one year of age, against 31 last year. The number of cases of principal reportable diseases were: Diphtheria, 48; scarlet fever, 50; measles, 190; whooping cough, 8; typhoid fever, 1; tuberculosis, 36. Included in the above were the following cases of non-residents: Diphtheria, 1; scarlet fever, 4; whooping cough, 1; tuberculosis, 4. Total deaths from these diseases were: Diphtheria, 1; scarlet fever, 4; tuberculosis, 15. Included in the above were the following cases of non-residents: Scarlet fever, 1.

Medical Advisory Board.—The first meeting of the Medical Advisory Board, appointed by His Honor, James M. Curley, met in the office of the Health Commissioner on May 10.

Those present at the meeting were Dr. F. X. Mahoney, Health Commissioner; Dr. John A. Ceconi, Epidemiologist, and Stephen L. Maloney, Department Secretary; Dr. Timothy Leary, Dr. F. P. Denney and Dr. Harry Linenthal, representing the Norfolk District Medical Society; Dr. Robert B. Osgood, Dr. Martin J. English and Dr. George C. Shattuck, representing the Suffolk District Medical Society; Dr. William H. Watters and Dr. Wesley T. Lee, representing the Massachusetts Homeopathic Hospital. Dr. Henry M. Pollack of the Massachusetts Homeopathic Hospital was out of town and unable to attend the meeting.

The Board was organized with the choice of Dr. F. X. Mahoney as chairman and Stephen L. Maloney as secretary.

The meeting of the Board was opened by Chairman Mahoney with words of welcome. He stated that the Advisory Board was offi-

cially appointed by His Honor, James M. Curley, to advise and coöperate with the Health Commissioner on request and in cases of emergency in medical matters, particularly in preventive medicine.

Dr. Mahoney prefaced the discussion by a request that the Medical Board bring to their respective societies the desire that all physicians coöperate with the Health Department in the prevention of disease. He stated that he had confidence in the physicians in the city and their ability to intelligently diagnose and combat any unusual outbreak of communicable disease.

Dr. John A. Ceconi, Epidemiologist in the Health Department, explained in detail the methods used in the Schick and Toxin Antitoxin method for the control of diphtheria.

The Board then took up the advisability of endorsing the inauguration by the Health Department of this Schick and Toxin Antitoxin method for the control of diphtheria, and, after a lengthy discussion, went on record as unanimously favoring the promotion of the tests in the city of Boston. It was agreed that the physicians in the city should be informed in detail, by means of descriptive and illustrative circulars and instructions, as to the administration, reaction and efficacy of the test, especially in view of the successful results that have been shown in several of the large cities where the work is being carried on, particularly in New York City, where Dr. Zingher, alone, has already tested more than 160,000 children.

It was decided that clinics for demonstration of the application of this test and treatment will be conducted under the auspices of the Health Department, at which physicians will be allowed to participate. It was the sense of opinion of the members of the Board that physicians in charge of baby clinics and at hospitals should take especial interest in this work, and that parents of children of pre-school age should be encouraged and urged by pediatricians to have the babies tested.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The officers elected at the annual meeting are as follows: President: J. S. Stone, M.D.; vice-president: C. M. Smith, M.D.; secretary: R. H. Miller, M.D.; treasurer: D. J. Bristol, Jr., M.D.; commissioner of trials: Channing Frothingham, Jr., M.D.; councillor for nominating committee: W. C. Howe, M.D.; alternate: W. H. Robey, Jr., M.D.; librarian: E. C. Streeter, M.D.; committee on supervision: F. W. Stuart, M.D., L. H. Spooner, M.D.; committee on social meetings: H. F. Day, M.D., A. A. Horner, M.D., A. W. Allen, M.D., L. J. Cummins, M.D., censors: G. B. Fenwick, M.D., T. J. O'Brien, M.D., R. H. Vose, M.D., G. A. Leland, Jr., M.D.; councillors: J. L. Ames, M.D., S. H. Ayer, M.D., J. W. Bartol, M.D., V. Y. Bowditch, M.D., R. Bonney, M.D., J. T. Bottomley, M.D., E. G. Brackett, M.D., J. E. Briggs, M.D., M. E. Champion, M.D., L. J. Cummins, M.D., L. Davis, M.D., W. H. Devine, M.D., C. Frothingham, Jr., M.D., J. E. Goldthwait, M.D., G. S. Hill, M.D., W. C. Howe, M.D., J. C. Hubbard, M.D., H. Hutchins, M.D., H. Jackson, M.D., D. F. Jones, M.D., E. A. Locke, M.D., F. T. Lord, M.D., F. B. Lund, M.D., D. Macomber, M.D., G. B. Magrath, M.D., B. H. Metcalf, M.D., R. H. Miller, M.D., J. J. Minot, M.D., E. H. Place, M.D., B. W. Pond, M.D., A. Quackenboss, M.D., E. Reynolds, M.D., W. H. Robey, Jr., M.D., S. Rushmore, M.D., D. D. Scannell, M.D., C. L. Scudder, M.D., C. M. Smith, M.D., J. S. Stone, M.D., E. W. Taylor, M.D., L. P. Tingley, M.D., F. H. Williams, M.D.

DEFECTS IN VERMONT SCHOOL CHILDREN.

OF 4765 pupils examined in one health district in Vermont 3235 were found to have physical defects detrimental to health, growth and mental development. Most of these defects were considered to be correctable. In Health District No. 2 13 per cent. had diseased tonsils and adenoids, 18 per cent. defective eyesight, 7.7 per cent. defective hearing, 51 per cent. defective teeth. These percentages were not very different throughout the state. There are two health districts in the state. In many instances whenever it was found that corrective measures could not be paid for, the state furnished necessary operatives.

The United States Public Health Service has stated that Vermont has 100 per cent. of its rural population under whole time health officers. The general average throughout this country is 8.26 per cent. according to the Bulletin of the Vermont State Board of Health. The nearest approach to the Vermont figure is 45 per cent. for Ohio.

CHAULMOOGRA OIL AS LEPROSY CURE DISCUSSED IN NEW BULLETIN.

ALTHOUGH chaulmoogra oil has been in use for hundreds of years by the natives of India in the treatment of leprosy, it is only in recent times that general interest has been taken in it. Now scientists and medical men of various countries are studying the chaulmoogra tree with special consideration of the curative properties of the oil and its constituents, which already have been thoroughly examined chemically.

The United States Department of Agriculture has had plant explorers in the Orient

studying the true chaulmoogra and collecting the native lore regarding the value and uses of the oil from different related species. In Department Bulletin 1057, "The Chaulmoogra Tree and Some Related Species," by Joseph F. Rock, agricultural explorer, is collected all the recent information regarding these trees and the oils used in the treatment of leprosy and some other skin diseases.

According to the bulletin, some investigators accept it as established "that the fatty acids of the chaulmoogric series are specific in leprosy." The modern method is to use hypodermic injections of the esters prepared from the peculiar fatty acids of the oil which have been found to possess curative properties.

The bulletin is of a technical nature and of interest chiefly to investigators. Those interested may obtain it from the Department of Agriculture, Washington, D. C.

A MENACE TO SCIENCE AND EDUCATIONAL INSTITUTIONS.

THE Underwood Tariff Bill, still in power, enacted October 3, 1913, provides a rate of 25 per cent. *ad valorem* for scientific instruments, microscopes, etc., and grants to educational institutions the privilege of importing these items free of duty. (This privilege has likewise prevailed in tariff acts existing prior to the one referred to.)

The "Fordney Tariff Bill" (H. R. 7456), introduced in the House of Representatives on June 29, 1921, provides an increase to the following rates: (a) Microscopes, photo apparatus, projection apparatus, field glasses, optical and scientific instruments, 35 per cent. *ad valorem;* (b) abolishes the privilege to educational institutions of importing scientific instruments free of duty.

The latest form of Tariff Bill H. R. 7456, reported by Mr. McCumber on April 11, 1922 (now before the Senate committee on finance), reads as follows: Azimuth mirrors, sextants and octants; photographic and projection lenses, opera and field glasses, telescopes, microscopes and other optical instruments and frames and mountings for the same, 55 per cent. *ad valorem* (120 per cent. increase over the present rate). Paragraph 360, page 77, reads as follows: Philosophical scientific, and laboratory instruments, apparatus, utensils, appliances (including drawing and mathematical instruments), and parts thereof, composed wholly or in chief value of metal, surveying instruments and parts thereof, 55 per cent. *ad valorem* (120 per cent. increase over the present rate). Paragraph 1531, page 216, does not provide for duty free importation of scientific instruments for educational institutions, therefore automatically cancels this privilege.

The strong opposition prevailing among the scientists of this country is forcefully voiced through the resolution passed and adopted by the American Association for the Advancement of Science (having over 12,000 members) at the second Toronto meeting, December 27-31, 1921.

Telegraph, write or make personal presentation of your objection to the Senator and Congressman of your district, and, furthermore, communicate with each member of the United States Senate Committee on Finance, Senate Office Building, Washington, D. C.

THE BILL FOR THE LIMITED PRACTICE OF MEDICINE BY MEDICAL STUDENTS.

THIS bill, innocent in intent, and restricting the medical student to work under direction of instructors, has had a stormy experience in the Legislature. The Senate was equally divided when this bill came up for action and the President had to cast the deciding vote in its favor. Some members of the Legislature evidently failed to understand the purport of the bill, which was to protect students engaged in the study of medicine, at the same time defining their powers. The patients under treatment, who were assigned to students, would not be subject to danger, for all that a student will be able to do will be to study the symptoms and behavior of the diseases under investigation and only apply treatment as directed. Without this law students engaged in the study of cases were liable to prosecution, for it has been the custom to encourage the examination of patients for the purpose of making diagnosis and rendering simple treatment. Students engaged in observing obstetric cases were especially in danger. If the bill is finally enacted the conditions will be far more satisfactory.

THE ANNUAL MEETING OF THE SOCIETY.

THIS year the Massachusetts Medical Society has arranged an unusual program for its meetings on June 13 and 14. In addition to the usual Hospital Clinics and Section Meetings a very interesting and practical program has been arranged for June 14 at the Harvard Medical School. The Departments of Physiology, Pharmacology, Chemistry and Hygiene have gladly consented to give demonstrations of the work being done in their departments, which will be of the greatest value to the practitioner. It is a real opportunity for the members of the society to return to the school and

learn the great practical value of the work which is being carried on there. It is to be hoped that as many as possible will take advantage of these demonstrations.

THE WORK OF THE AMERICAN RELIEF ADMINISTRATION.

TEN of the leading medical colleges in Russia have received a large shipment of medical journals which were furnished to the Medical Division of the American Relief Administration by the Rockefeller Institute, says a cablegram from Moscow to the American Relief Administration headquarters here today.

"Russian doctors," says the message, "have been starved for medical literature and feel that they have been cut off from all medical progress in the last five years; hence these publications satisfy the craving for recent scientific knowledge."

Further shipments are reaching Russia, it was announced, and will be distributed as rapidly as it is possible to do so. During March 83 hospitals and public institutions in Petrograd were supplied by the American Relief Administration with medicines and other necessities.

SCHEDULE OF NEXT SEASON'S MEDICAL MEETINGS.

THE JOURNAL will publish the schedule of medical meetings in every issue for the next season if the information is furnished. Secretaries of societies and clubs should send in those dates which are fixed so that the facts may be available. Whenever the subjects to be considered can be known in advance this information will be added. The suggestion for this plan has been made by a prominent practitioner. One reason for the publication of dates of meetings is to enable those who may be planning for some special meeting to select a time which will not conflict with regular meetings.

Miscellany.

RESEARCH FELLOWSHIP OF ONE THOUSAND DOLLARS FOR THE STUDY OF ORTHOPEDICS IN RELATION TO HYGIENE AND PHYSICAL EDUCATION, GRADUATE DEPARTMENT, WELLESLEY COLLEGE.

GENERAL requirements to be met by the successful applicant: Good health; the Bachelor's degree from a college or university of good standing; sound preparation in chemistry, physics and biology; special preparation in anatomy, kinesiology and physiology; familiarity with the elements of orthopedic theory and practice; and an insight into some one or more of the problems of orthopedics as related to hygiene and physical education.

The work on the problem chosen in consultation with the department must be done in residence at Wellesley College except for study and observation of clinical practice. It will, in general, begin in September following the acceptance of the applicant and will continue through one calendar year. It will involve kinesiology, applied physiology and the study of clinical material. For the latter, opportunity will be provided to study the work of orthopedic surgeons in Boston and other Eastern cities. The results of the investigation are to be embodied in a thesis to be submitted to the department and published.

Those wishing to apply for this fellowship should send their evidence of preparation and qualifications to the Director, Graduate Department of Hygiene and Physical Education, Wellesley College, Wellesley, Mass. The decision reached by the department will be based upon the applicant's record, upon personal correspondence, and, when possible, upon personal interviews.—*Wellesley College Bulletin*, March, 1922.

VIVISECTION AND VALUES.

As reported by a Boston paper, Mr. Rowley, president of the Massachusetts Society for Prevention of Cruelty to Animals, said yesterday in a public attack on vivisection that he would forego any of the advances of modern medicine rather than benefit by experimentation on dumb animals, and that the basis of his objections is moral.

In taking this position Mr. Rowley, like most other antivivisectionists, is guilty of the fallacy of inverted values, which had its origin in ages that were indifferent to man's earthly destiny. The earthly destiny of man is earthly perfection. The higher characters of the race put themselves through immense toil and often through great suffering and deprivation to advance mankind toward his goal. These persons are invariably the most moral people of their generation. They are so because they work effectively for the highest moral end—mankind's earthly perfection.

The antivivisectionists would thwart this end, to save some animals from some suffering for man's highest welfare. The best and noblest men may suffer for that exalted aim, but lower animals must not. And saving a fraction of the animals from this suffering, a spokesman for morality calls moral!

It is, on the contrary, altogether immoral. Nothing compares with the immorality of ob-

structing the development of the highest form of life on earth into something still higher. To keep mankind low, degraded, backward, heavily handicapped and retarded by disease, is a perversion of values which passes over the border of immorality into moral crime.

MORRISON I. SWIFT.

Boston, April 26, 1922.

—*Springfield Republican, April 29, 1922.*

MEDICINE AND DISEASE IN RUSSIA.

THE following is from an abstract in the *Journal of Laboratory and Clinical Medicine* of an article by Dr. Boris Sokolov, Professor of Protozoology at the University of Petrograd, and is quoted as an indication of the grave menace conditions in Russia are to the health of the rest of the world.

"The Soviet medical organization is based upon rigid centralization, under the control of the Department of Public Sanitation and Hygiene, which directs the entire medical work of the country. The development of a bureaucracy has resulted in an extreme laxity in administration. Directors of the hospitals and clinics are members of the Communist party and usually are political appointees of little or no ability, but having absolute, dictatorial power.

"Scientific work is practically at a standstill. Only a very few medical journals have survived and the laboratories have neither money nor equipment for experimental work. What little research is being carried on has been chiefly in the study of typhus fever.

"The Soviet government appears to have at last assumed a tolerant attitude towards the medical profession. Members of this profession are the only 'intellectuals' whose work has not been entirely interrupted by the Communist Revolution. The medical men have attempted to maintain throughout a neutral attitude in political matters. As a body they are, however, anti-Communist. As a result of this neutrality many have been shot by the Reds, and many others by the Whites. Many physicians are still in prison. The doctors have felt it their duty to maintain, in so far as possible, the health of the masses, the majority of whom cannot be held responsible for the Revolution or its consequences. Twenty-five per cent. of the profession have left Soviet Russia.

"Physicians have suffered more from epidemic disease than from persecution or civil war. Between November, 1917, and August, 1920, 47 per cent. of the medical men in Petrograd died."—*Weekly Bulletin, New York Department of Health.*

CRITICISM OF THE AMERICAN PUBLIC HEALTH ASSOCIATION.

AT the annual meeting held in November, 1921, Dr. Louis I. Harris presented resolutions charging that the leadership and direction of the Association were more in the hands of corporate agencies and lay groups than in state and municipal health officials and that the Association had failed to meet its responsibilities.

The matter came up for discussion at the meetings of the Executive Board and Governing Council held in Washington March 15 and 16, 1922. At this meeting the following resolution, proposed by Dr. Lee K. Frankel, was adopted:

"Resolved, That the President of the Association be authorized to appoint a representative committee of fifteen from the membership of the Association to consider the advisability of a fundamental reorganization of the Association and a clarification of its policy."

This Association is composed of eminent workers in Public Health bodies, and several members are from this section of the country, hence the future policies to be adopted will be of great interest to the profession in this state.

NEW HAMPSHIRE HEALTH OFFICERS.

THE local boards of health throughout New Hampshire are obliged to send their health officers or a representative to a school of instruction arranged for by the State Board of Health.

Two hundred and fifty health officers recently attended a conference at Concord, N. H. During this session many papers were read and discussions on health problems were conducted. A spirit of coöperation has been developed throughout the state.

EARLY USE OF ANTITOXIN.

Diphtheria is curable. If antitoxin in sufficiently large doses is given on the first day of the disease, practically every child will recover.

Now for the figures. Out of a total of 8372 cases, 624 cases were given antitoxin on the first day of the attack, with only two deaths resulting. In 2181 cases antitoxin was given on the second day of the attack, with only 33 deaths, or 1.51 per cent. In 2926 cases antitoxin was given on the third day of the attack, with 99 deaths, or 3.38 per cent of a mortality rate. In 1578 cases in which antitoxin was given on the fourth day of the attack, there were 176 deaths, or 11.15 per cent. of a death rate. Out of 1063 cases in which antitoxin was administered the fifth day or later, there were 234 deaths, or 22.01 per cent.

Now note that out of a total of 544 deaths, all but two of them occurred in cases where antitoxin was administered later than the first day and all but 35 of them occurred when antitoxin had been administered on the third day or later.—*Bulletin Chicago School of Sanitary Instruction.*

RESEARCHES ON THE RELATION BETWEEN SUSCEPTIBILITY AND FATIGUE.

THE American Medical Association has granted to Dr. Reynold A. Spaeth, of the Department of Physiology, School of Hygiene and Public Health, Johns Hopkins University, the sum of $200 to further his researches on the relation between susceptibility and fatigue.—*Science*, May 5.

DR. LONGCOPE APPOINTED PROFESSOR OF MEDICINE AT JOHNS HOPKINS.

DR. WARFIELD THEOBALD LONGCOPE, Bard professor of medicine at Columbia University and physician-in-chief at the Presbyterian Hospital, New York City, has been appointed professor of medicine at the Johns Hopkins University Medical Department and physician-in-chief at the Johns Hopkins Hospital, beginning on July 1, when the one-year term of Dr. H. Canby Robinson will expire. Dr. Robinson went to the hospital with the understanding that at the end of one year he was to return to his post as professor of medicine and dean of the Vanderbilt University Medical Department.—*Science*, May 5.

CANCER PREVENTION MEETING IN SPENCER.

DR. EDWARD H. TROWBRIDGE of Worcester addressed an audience of about four hundred citizens of Spencer on a recent Sunday afternoon. His subject was "Cancer: How to Detect It, How to Avoid It, and How to Treat It."

The committee in charge of this meeting consisted of Dr. George W. Ellison, Dr. J. R. Fowler, Arthur Monroe, Esq., Mr. Waldo Bemis and Mr. Newton Prouty. The musical program was arranged by Miss Nina Fletcher, Miss Mary Gilbert and Mr. Robert E. Skaife.

DANGERS INCIDENT TO THE INTRAVENOUS USE OF QUININE IN THE TREATMENT OF MALARIA.

KENNETH F. MAXCY, Assistant Surgeon U. S. P. H. S., has written on this subject, basing his conclusions on the results set forth in recent war literature and on cases under his observation. He states that "Quinine injected intravenously into man may manifest quite definite effects upon the circulatory system, the nervous system, and upon the skin and subcutaneous tissue when these are involved at the site of the injection." His conclusions are as follows:

1. The dangers in the intravenous injection of quinine in the treatment of malaria are: Depression of the circulation; disagreeable and alarming nervous phenomena; and local necrosis and sloughing at the point of injection.

2. No evidence is found to indicate that this route possesses special advantages over ordinary mouth administration of the drug in curing the acute attack or in ridding the blood-stream of sexual forms (crescents), except with regard to the speed with which therapeutic control may be initiated.

3. The method should be reserved for those cases with urgent clinical indications or in which mouth administration of the drug is impracticable for any reason.

4. The untoward effects which may result from intravenous administration of quinine may be largely avoided by rigorously observing certain precautions similar to those found necessary in the injection of such drugs as salvarsan.

A RESEARCH FELLOWSHIP IN BACTERIOLOGY.

IT is announced by Dr. Victor C. Vaughan of the National Research Council, in Washington, that the Society of American Bacteriologists at its recent meeting in Philadelphia, appropriated a fund for the support of a Research Fellowship in pure bacteriology. While excellent work is being carried on in many places, nearly all the problems under investigation have as their aim a practical application and there are, therefore, many gaps in our knowledge of fundamental principles. The Society, believing it to be the duty of bacteriologists to fill these *lacunae*, requires that the line of work to be carried on under its fund must concern a purely scientific and fundamental phase of bacteriology, although a certain latitude of choice will be permitted, conditioned by the previous training and the desires of the research fellow himself.

Applicants for the fellowship must have the degree of B. S., or its equivalent. The success-

ful candidate, through arrangements now being made, will receive academic credit for the work done from a university of recognized standing. One hundred dollars a month will be available for the living expenses of the fellow. Approximately half his time will be devoted to details connected with the Society's collection of bacteria, deposited at the Army Medical Museum.

The selection of the research fellow will be in charge of a committee consisting of: Dr. Victor C. Vaughan, Chairman Medical Section, National Research Council, Chairman; Captain C. S. Butler, Medical Corps, U. S. Navy, Commandant, Naval Medical School; Dr. George W. McCoy, Director Hygienic Laboratory, U. S. Public Health Service; Dr. John R. Mohler, Chief, Bureau of Animal Industry; Mr. L. A. Rogers (President of the Society of American Bacteriologists), in charge of Research Laboratory, Dairy Division, Bureau of Animal Industry; Colonel Joseph F. Siler, Medical Corps, U. S. Army, Division of Sanitation, Office of the Surgeon-General of the Army; Dr. Erwin F. Smith, Pathologist in Charge, Laboratory of Plant Pathology, Bureau of Plant Pathology.

This committee will have general supervision of the work, approve the problem selected and pass upon the thesis which the fellow will submit as the report of his research.

Applications for and communications concerning the Research Fellowship should be addressed to the Chairman of the Committee, Dr. Victor C. Vaughan, National Research Council, Washington, D. C.

A. Parker Hitchens, M. C.,
Secretary of the Committee.
Army Medical School,
Washington, D. C.

THE CULTURE COLLECTION OF THE SOCIETY OF AMERICAN BACTERIOLOGISTS.

The Society of American Bacteriologists has taken over the collection of cultures which for the past ten years has been maintained at the American Museum of Natural History by Professor C.-E. A. Winslow, and has deposited it at the Army Medical Museum, where facilities have been arranged for its housing and maintenance. The following committee will be in charge:

Major G. R. Callender, Curator of the Army Medical Museum; Dr. George W. McCoy, Director Hygienic Laboratory, U. S. Public Health Service; Major H. J. Nichols, Army Medical School; the President of the Society; the Secretary of the Society; Dr. J. M. Sherman, Dairy Division, Bureau of Animal Industry, Chairman.

These and other members of the Society in and near Washington will do volunteer work and the research fellow will do part-time work in maintaining the collection. No charge will be made for cultures. In making requests, the classification of the Society should be followed as far as possible.

Mail should be addressed to the Department of Bacteriology, Army Medical Museum, 7th and B Streets, S. W., Washington, D. C.

J. M. Sherman,
Chairman of the Committee.

AMERICAN RELIEF ADMINISTRATION IN RUSSIA.

Saratov, Soviet Russia, March (by mail).—There were no anesthetics in the hospitals of this city, this winter, until the American Relief Administration arrived and began the distribution of medicine and hospital supplies.

A small supply of ether and chloroform was available, but the hospitals did not have the money to buy. The order was issued that each person coming to the hospital to have an operation performed must bring his own anesthetic with him. For the majority of patients, this was prohibitive. The price was equal to the amount earned in two months' labor. It became more and more necessary to perform minor operations without administering an anesthetic, and at least one leg amputation was made in this manner.

The American Relief Administration has distributed in this place alone supplies to thirty children's homes, ten hospitals, and four ambulatories. These include drugs of all kinds, as well as blankets, sheets, towels, pajamas, sweaters and stockings. The American Relief workers will not give supplies to hospitals or homes that are not willing to clean up and keep in decent condition.

Work in the large maternity wards is one of the most valuable and appreciated forms of medical relief here. The lives of many mothers and new-born infants have been saved since the nurses have been supplied with proper materials for their care.

The surgeons and nurses in the hospitals here have taken a new courage since the American Relief Administration arrived with its stock of medical supplies and surgical dressings.

Saratov is the seat of a large university, founded in 1909, and the Department of Medicine is one of its strongest faculties. The medical students assist in the laboratories and clinics of the hospitals, and one of the most famous medical professors in Russia is the chief surgeon at Sovietski Hospital No. 1. This hospital is now well managed and well supplied throughout, and is performing great service in the relief of typhus and other famine diseases. —*American Relief Administration.*

THE MEDICAL RECORD.

APRIL 22nd marked the passing of the last of the old independent medical weeklies—*The Medical Record*. The final issue as a separate publication appeared on that date and announcement was made that *The Medical Record* had been sold to and combined with the *New York Medical Journal*, which appears semi-monthly.

Throughout the fifty-six years of its service to the profession, *The Medical Record* has had the same publishers and but two editors. Dr. George F. Shrady guided its course for the first thirty-eight years and was succeeded by his assistant, Dr. Thomas L. Stedman, who has long been dean of American medical editors, and widely esteemed. The famous old firm of William Wood & Company will now devote its energies entirely to the publication of medical books, in which service it has been engaged for 118 years.

It is interesting to recall that many of the most important discoveries and developments in the progress of medicine were first announced to the American profession by the *Medical Record*. These included Lister's method of antisepsis: Koch's discovery of the tubercle bacillus and that of tuberculin; the employment of cocaine in eye surgery; the Roentgen rays; the discovery of the antitoxin of tetanus and that of diphtheria; Madame Curie's discovery of radium, and many others.

RABIES IN GEORGIA.

IN the *Journal of the Medical Association of Georgia*, the statement is made that Georgia is the focus for rabies in the entire United States, for during 1921 there were 454 proved cases of hydrophobia in dogs in that State, and over twenty-one hundred persons were forced to take the Pasteur treatment on account of being bitten by rabid dogs. There were nine deaths. Since 1909 more than fifteen thousand people have been given this treatment.

Reference is made to the extinction of rabies in Australia, due to effective laws.

The safe course for other states is to establish strict quarantine against dogs from Georgia.

THE CAUSE OF CANCER.

SIR W. ARBUTHNOT LANE, in an article in the *Medical Press and Circular*, contends that intestinal stasis has a necessary causal relationship to all forms of cancer other than the cutaneous varieties. He bases his argument on the freedom from cancer enjoyed by several isolated races living in the Himalayas, and claims that this immunity is the result of the diet employed, which consists largely of cereals which are not thoroughly ground or well cooked. The elimination of meat and the use of this diet prevents intestinal stasis.

Correspondence.

A CORRECTION.

Mr. Editor:

In the interest of accuracy, though it has no bearing on the subject matter, I wish to correct a misstatement in my article in the JOURNAL of April 27, on the "Evaluation of Intelligence Tests in Criminal Cases."

In the first of the cases cited, the verdict was guilty of murder in the first, not second degree, and the sentence, death.

Yours sincerely,

GEORGE L. WALTON.

AMERICAN MEDICAL ASSOCIATION, ST. LOUIS, MO., MAY 19-26, 1922.

Mr. Editor:

Replying to your favor of April 15th, regarding rates to St. Louis account of the American Medical Association.

We are pleased to quote the round trip rate from Boston, $64.52; Worcester, via Gardner, $62.45; Springfield, via Greenfield, $60.06. These rates apply via Buffalo.

Sleeping car fares, one way, including surcharge to Buffalo, are as follows: Lower berth from Boston, $4.50; Gardner, $4.13; Greenfield, $3.75. Upper berth from Boston, $3.60; Gardner, $3.30; Greenfield, $3.00.

Yours truly,

F. T. GRANT,

General Passenger Agent, Boston & Maine R. R.

BOOKS RECEIVED FOR REVIEW.

The JOURNAL acknowledges the receipt of the following list of books for review:

Pulmonary Tuberculosis—Its Etiology and Treatment. By David C. Muthu. Published by William Wood & Co., New York. 381 pages. Price $4.50.

Skin and Venereal Diseases. (Practical Medicine Series.) By Oliver S. Ormsby and James Herbert Mitchell. Published by The Year Book Publishers, Chicago. 243 pages. Price $1.75.

Nervous and Mental Diseases. (Practical Medicine Series.) By Peter Bassoe. Published by The Year Book Publishers, Chicago. 249 pages. Price $1.75.

The Healthy Child from Two to Seven. By Francis Hamilton MacCarthy. Published by The Macmillan Co., New York. 235 pages. Price $1.50.

Management of the Sick Infant. By Langley Porter and William E. Carter. Published by C. V. Mosby Co., St. Louis, Mo. 654 pages. Price $7.50.

Basal Metabolism—Its Determination and Application. Edited by Frank B. Sanborn. Published by Sanborn Co., Boston. 282 pages. Price $6.

Practical Infant Feeding. By Lewis Webb Hill. Published by W. B. Saunders Co., Philadelphia, Pa. 483 pages. Price $5.

The Thyroid Gland. Clinics of Geo. W. Crile and Associates. Published by W. B. Saunders Co., Philadelphia, Pa. 288 pages. Price $5.

Surgical and Mechanical Treatment of the Peripheral Nerves. By Byron Stookey. Published by W. B. Saunders Co., Philadelphia, Pa. 475 pages. Price $10.

The Place of Version in Obstetrics. By Irving W. Potter. Published by the C. V. Mosby Co., St. Louis, Mo. 138 pages. Price $5.

Radium Therapy. By Frank Edward Simpson. Published by the C. V. Mosby Co., St. Louis, Mo. 391 pages. Price $7.

Transactions of the American Gynecological Society, 1921. Edited by G. G. Ward. Printed by W. J. Dornan Press. 403 pages.

Transactions of the American Surgical Society, 1921. Edited by John H. Jopson. Printed by W. J. Dornan Press. 779 pages.

Studies from The Rockefeller Institute for Medical Research. Volume xl. Privately printed. 612 pages.

Transactions of the American Association of Genito-Urinary Surgeons. Vol. xiv. Published by the Williams and Wilkins Co., Baltimore, Md. 267 pages.

A Treatise on Glaucoma. By Robert Henry Elliot. Oxford Medical Publications. 656 pages. Price $8.

The Mechanism of the Brain and the Function of the Frontal Lobes. By Leonardo Bianchi. Published by William Wood & Co., New York. 348 pages. Price $5.50.

The Principles of Electrotherapy and Their Practical Application. By W. J. Turrell. Oxford Medical Publications. 276 pages. Price $3.85.

The Clinical Method in the Study of Disease. By R. M. Wilson. Oxford Medical Publications. 57 pages. Price $1.50.

Hyperpiesia and Hyperpiesis. By H. Batty Shaw. Oxford Medical Publications. 191 pages. Price $6.50.

The Oxford Index of Therapeutics. Edited by Victor E. Sorapure. Oxford Medical Publications. 1126 pages. Price $12.

A Psychoanalytic Study of Psychoses with Endocrinoses. By Dudley Ward Fay. Nervous and Mental Disease Publishing Co., Washington, D. C. 122 pages.

Transactions of the American Otological Society. Volume xv, Part iii. Published by the Society. 434 pages.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Reported Week Ending April 29, 1922.

Disease	*No. of Cases*	*Disease*	*No. of Cases*
Anterior poliomyelitis	1	Ophthalmia neonatorum	15
Chicken-pox	110	Pneumonia, lobar	114
Diphtheria	145	Scarlet-fever	174
Dog-bite requiring anti-rabic treatment	7	Septic sore-throat	2
Encephalitis lethargica	5	Syphilis	59
Epidemic cerebro-spinal meningitis	1	Suppurative conjunctivitis	14
German measles	30	Tetanus	1
Gonorrhea	109	Trachoma	1
Influenza	26	Tuberculosis, pulmonary	153
Measles	1,010	Tuberculosis, other forms	14
Mumps	146	Typhoid-fever	10
		Whooping-cough	99

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH.

Reported Week Ending May 6, 1922.

Disease	*No. of Cases*	*Disease*	*No. of Cases*
Chicken-pox	62	Ophthalmia neonatorum	26
Diphtheria	137	Pneumonia, lobar	96
Dog-bite requiring anti-rabic treatment	3	Scarlet-fever	183
Dysentery	1	Septic sore-throat	1
Encephalitis lethargica	9	Syphilis	32
Epidemic cerebro-spinal meningitis	3	Suppurative conjunctivitis	15
German measles	17	Tetanus	3
Gonorrhea	107	Trachoma	5
Hookworm	1	Tuberculosis, pulmonary	137
Influenza	12	Tuberculosis, other forms	23
Measles	815	Typhoid fever	9
Mumps	94	Whooping-cough	87

PUBLIC HEALTH LECTURERS FOR THE YEAR 1922.

The Committee on Public Health of the Massachusetts Medical Society has been able during the past three years to arrange with well known specialists in various medical fields to give talks at meetings of the District Medical Societies on subjects of interest and importance to all practitioners. It is a pleasure to announce that a similar arrangement has been made this year and that the gentlemen named below are willing, without expense to the District Society, to give occasional talks of thirty to forty minutes on subjects relating to the promotion of public health, extending opportunity for questions and discussion. It is suggested that medical societies consider meeting at neighboring public institutions, since such meetings have been most successful in the past, particularly at the tuberculosis sanatoria and state hospitals for the insane.

José Penteado Bill, M.D., Doctor of Public Health, Specialty: Preventive Medicine.

Frank C. Dunbar, M.D., Bacteriologist, Instructor in Bacteriology and Pathology, Tufts College Medical School.

Walter E. Fernald, M.D., Superintendent, Massachusetts School for the Feeble-minded.

Timothy Leary, M.D., Professor of Pathology, Tufts College Medical School; Medical Examiner, Suffolk County.

Edwin H. Place, M.D., Physician-in-Chief, South Department, Boston City Hospital. Specialty: Contagious Diseases.

C. Morton Smith, M.D., Chief of Department of Syphilis, Massachusetts General Hospital.

George Gilbert Smith, M.D., Assistant in Department of Genito-Urinary Diseases, Massachusetts General Hospital. Specialty: Genito-Urinary Diseases.

Lesley H. Spooner, M.D., on Staff of Out-Patient Department, Massachusetts General Hospital, Specialty: Specific Diagnosis and Treatment of Pneumonia.

William C. Woodward, M.D., Health Commissioner, City of Boston.

George H. Wright, D.M.D., Lecturer on Dental Hygiene, Harvard Dental School. Specialty: Dental Surgery.

Thomas F. Kenney, M.D., Director of School Hygiene, City of Worcester. Specialty: Full time School Health Officer.

Secretaries of District Medical Societies writing to ask for these lecturers will kindly designate the topic, the place and the hour of meeting as well as the name of the desired speaker, thus eliminating unnecessary correspondence. Please address communications to the Secretary of the Committee, Annie Lee Hamilton, M.D., 164 Longwood Ave., Boston 17.

[Note: The Committee on Public Health feels that this notice may have escaped attention, for few applications have been received. Each lecturer is an authority and would present his subject in an interesting and instructive manner.]

NOTICES.

NEW YORK AND NEW ENGLAND ASSOCIATION RAILWAY SURGEONS.—The thirty-second annual session of the New York and New England Association Railway Surgeons will be held at the Hotel McAlpin, Broadway and 34th Street, New York City, on Saturday, October 28, 1922, under the presidency of Dr. Donald Guthrie of Sayre, Pa. A very attractive and interesting program is being arranged for this session.

THE RESEARCH CLUB OF THE HARVARD MEDICAL SCHOOL.—At the meeting to be held on Friday, May 19th, in the Amphitheatre of Building A, Dr. R. M. Ferry will talk on "Recent Developments in the Chemistry of Hemoglobin."

NEW ENGLAND SURGICAL SOCIETY.

C. A. PORTER, *Pres.* P. E. TRUESDALE, *Sec.*

H. L. SMITH, *Vice-Pres.* P. P. JOHNSON, *Treas.*

To the Members of the Society:

The fifth annual meeting will be held at Burlington, Vt., September 22 and 23, 1922, with headquarters at Hotel Vermont.

The following is a tentative outline of the program:

FRIDAY.

9 A. M.—Operative Clinic, Mary Fletcher Hospital.

11 A. M.—Dry Clinic, Mary Fletcher Hospital.

12:30 P. M.—Lunch at Ethan Allen Club.

2 P. M.—Scientific program, Hotel Vermont, Roof Garden.

4 P. M.—Steamer Ticonderoga — Boat party to points of historic interest and rare scenic beauty on Lake Champlain.

7 P. M.—Annual dinner on board steamer Ticonderoga.

SATURDAY.

9 A. M.—Reading of papers—Hotel Vermont.

12:30 P. M.—Lunch, etc., at Hotel Vermont.

2 P. M.—Completing the scientific program.

The invitation for the 1922 meeting to be held at Burlington has been most cordially extended by the Vermont members.

No part of New England is more picturesque and more memorable in American history. No section of New England is more worthy of a largely attended meeting. So plan to make September 21 and 22 a part of your vacation.

Members are invited to prepare papers for this meeting. The title of each paper should be in the hands of the secretary on or before June 1.

P. E. TRUESDALE, *Secretary.*

CONGRES DES DERMATOLOGISTES ET SYPHILIGRAPHES.

A Congress of Dermatologists and Syphilologists, conducted in French, will take place in Paris on June 6th, 7th, and 8th, 1922, under the patronage of the Société Française de Dermatol. & Syphiligraphs.

Those eligible to regular membership in the Congress are: (a) Members of National Societies of Derm. & Syph.; (b) Doctors interested in Derm. & Syph.

Subscription to the Congress will be sixty francs.

The meeting will be held at the St. Louis Hospital at 9 A.M. and 2 P.M. At the morning meetings patients will be shown and special papers will be read. The afternoon sessions will be given to the discussion of the following papers:

1. Epidermomycoses (excluding ringworm of the scalp), M. le Dr. Petges (Bordeaux).

2. Subacute Inguinal Lymphogranuloma of Venereal Origin, M. le Prof. J. Nicolas et M. le Dr. Favre (Lyons).

3. Colloidales reactions in venous syphilis. Reactions to Colloidal Gold, to Gum Mastic, to Colloidal Benzoin, M. le Dr. Guy Laroche.

For the Committee,

HUDELO.

Communications and subscriptions to the Congress should be sent before May 15th, 1922, to M. le Dr. Hudelo, 8 rue d'Alger, Paris. Titles of papers, accompanied by a short résumé, should be sent to M. le Dr. Hudelo before May 1st.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION.

Mid-Summer meeting June 19th and 20th, 1922, at Rochester, Minnesota. Among the speakers from outside the state who will be guests of the Association and will appear on the Scientific Program are: Dr. W. B. Cannon, Boston, Massachusetts; Dr. Judson Daland, Philadelphia, Pennsylvania; Dr. Fred H. Albee, New York City, New York; Dr. William B Coley, New York City, N. Y.; Dr. George E. Shambaugh, Chicago, Illinois; Dr. Willis Campbell, Memphis, Tennessee; Dr. Herman L. Kretschmer, Chicago, Illinois; Dr. Preston H. Hickey, Detroit, Michigan; Dr. Nathaniel G. Alcock, Iowa City, Iowa; Dr. George V. I. Brown, Milwaukee, Wisconsin; Dr. M. G. Seelig, St. Louis, Missouri; Dr. George W. Heuer, Cincinnati, Ohio.

The program for the forenoon sessions of Monday June 19th, and Tuesday, June 20th, will consist of Surgical and Medical Clinics, and Demonstrations in all departments at the following hospitals: St. Mary's Hospital, Colonial Hospital, Worrell Hospital, Curie Hospital, Olmstead Hospital, Clinic Building.

The program for the afternoon sessions will consist of Scientific Papers, and the Mid-Summer Banquet will be held at the Gymnasium, High School Building, Monday evening, June 19th, 1922, at 6 P. M.

Make hotel reservations early by addressing Mr. Roy Watson, Chairman Committee of Arrangements, Southern Minnesota Medical Association, Rochester, Minnesota.

The official program will be published by May 15 1922.

DR. H. W. MEYERDING, *Chairman*, Rochester.

APPOINTMENTS BY MAYOR CURLEY.

Dr. Paul F. Butler has been promoted from the position of Assistant City Physician for the x-ray service to the position of X-Ray Service Physician.

Dr. Alexander MacMillan has been appointed to the position made vacant by the promotion of Dr. Butler.

A CORRECTION.

Dr. William Joseph Delehanty's name should have appeared in the list of Councilors elected by the Worcester District Society at its annual meeting.